

Dental

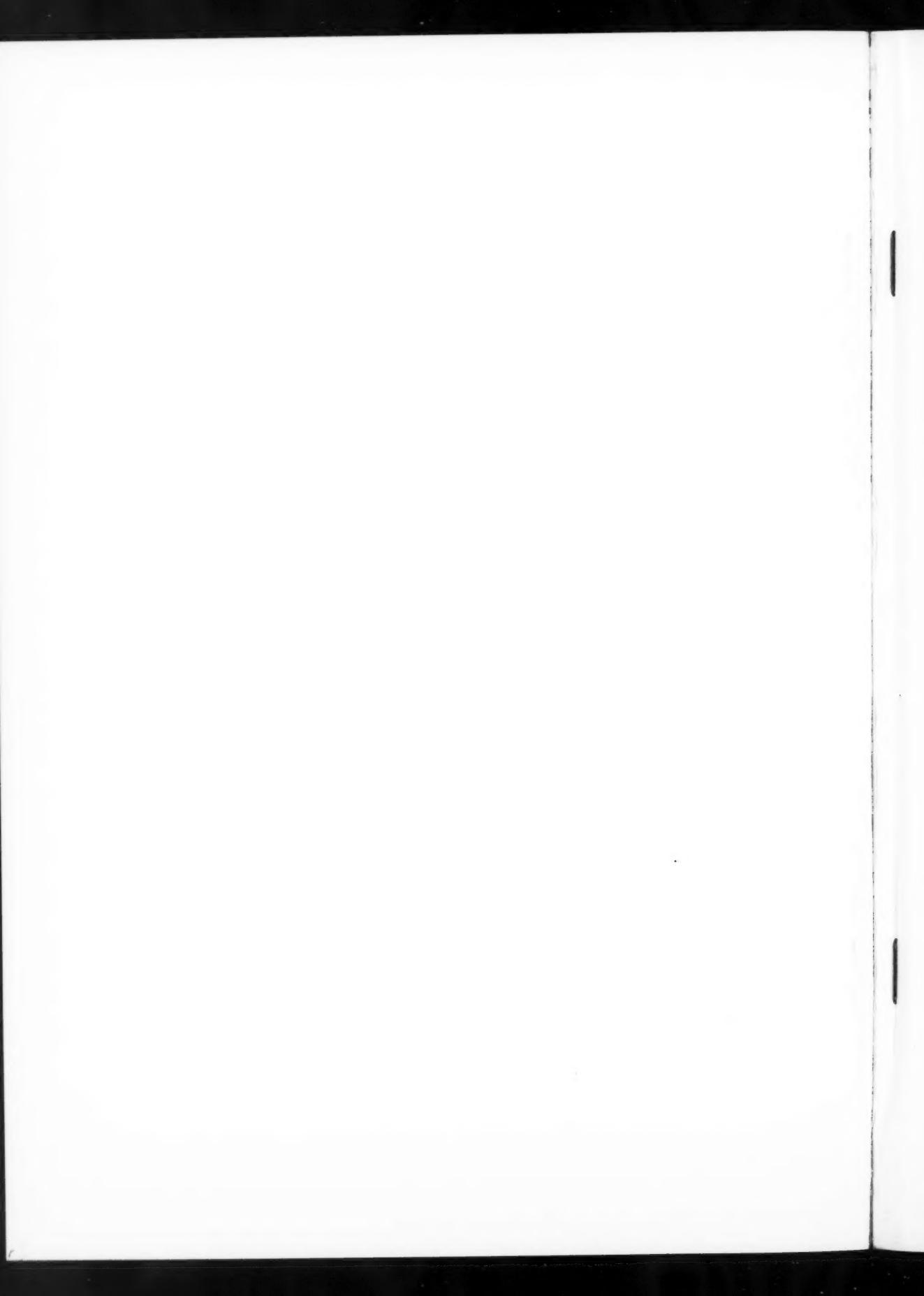
Abstracts

a selection of world dental literature

AMERICAN DENTAL ASSOCIATION

Volume 3 • Number 12

DECEMBER 1958



VOLUME 3 · NUMBER 12 · DECEMBER 1958



A selection of world dental literature

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AMERICAN DENTAL ASSOCIATION 222 E. SUPERIOR ST. CHICAGO 11

Published monthly by the American Dental Association at 1009 Sloan Street, Crawfordsville, Indiana. Entered as second class matter at the Post Office at Crawfordsville, Indiana, under the act of March 26, 1956. Change of address notices, undeliverable copies, orders for subscriptions, and other mail items are to be sent to editorial and executive offices, 222 East Superior Street, Chicago 11, Illinois. Printed in U.S.A. Subscription \$6.00 a year in U.S.A.; \$7.00 outside U.S.A. Single copy \$1.00. Issue of December 1958, Vol. 3, No. 12. Copyright 1958 by the American Dental Association. All expressions of opinion and statements of supposed fact are those of the author of the abstracted article and are not to be regarded as expressing the views of the American Dental Association unless such opinions or statements have been adopted by the Association.

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1. *To present a selection of pertinent literature representative of all points of view within the profession;*
2. *To provide, by a few hours' reading, a survey of the significant advances being made by dentistry throughout the world, as reflected in current dental literature; and*
3. *To supply enough data in each abstract and digest that the reader may determine whether he wishes to refer to the original article for more complete information.*

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The use of Telfa as a periodontal surgical dressing

Irving B. Stern. New York State D.J. 24:260-263
June-July 1958

In 1954 Telfa, a dressing made by Bauer & Black, was introduced to facilitate healing in those periodontal surgical wounds which involve bone. Telfa is available in 2 by 3 inch sheets in individual, sterile envelopes, and in larger sizes which are easily sterilized in an autoclave. Each sheet consists of two layers bonded together. One layer is a polyester film 0.00025 inch thick, containing perforations from 0.2 mm. to 1.0 mm. in diameter, with 200 perforations per square inch. This film is nonadherent and resists wetting. The perforations are too small to admit granulations but permit the passage of exudate. The second layer is a matted, nonwoven cotton fabric, 2 mm. thick and highly absorbent.

Telfa has been used extensively as a dressing for surgical and traumatic wounds, burns and skin grafts. In these instances, the film is applied directly on the wound. The outer, absorbent cotton layer draws exudate through the perforations in

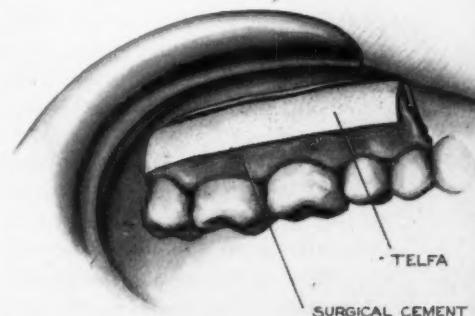
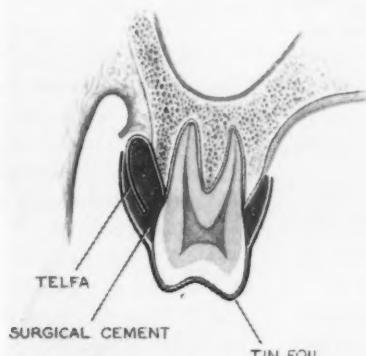
the film, and the wound is kept relatively dry. Since the granulations do not become enmeshed in the perforations and the film is nonadherent, dressing changes are made easier, less painful, and not disruptive of the healing wound.

When used as a periodontal dressing, Telfa is held in place by surgical cement. The Telfa sheet is cut to a size that will cover the exposed bone. The dressing is approximated in position, film side on the bone, by a ribbon of soft cement which tacks one margin of the dressing to the adjacent teeth. Or, the dressing may first be wrapped around a cylinder of surgical cement which then is tacked in place in the same manner (illustration). A thicker periodontal cement cover is placed over the dressing and in turn is covered with adhesive foil. The absorbent quality of the backing is nullified since it becomes wet in the application of the dressing. Consequently, some dentists prefer to strip the backing from the film before inserting the Telfa dressing.

This dressing has been used for four years at the periodontal clinic of the School of Dental and Oral Surgery, Columbia University. No instance of irritation, sensitivity or untoward reaction has been observed. Most clinicians prefer to cover bare bone directly with Telfa rather than with surgical cement. Granulation takes place under the dressing by the time of the first dressing change, one week after surgery. The dressing, however, is not a cure-all; pain and delayed healing occur occasionally despite its use.

When bone wounds are dressed with surgical cement, healing is delayed. This delay may be

*Application of Telfa
to exposed
bone surface
using the procedure
of wrapping the Telfa
around cylinder
of surgical cement
which then is tacked
in place*



caused by chemical ingredients of the cement. A more rapid healing has been observed when Telfa dressing is placed between the surgical cement and bone. It may be presumed that the Telfa dressing serves to prevent the irritants in the cement from reaching and acting on the bone. The combination of Telfa and surgical cement facilitates healing when bone is surgically exposed, and maintains comfort and permits function after surgery.

630 West 168th Street, New York, N.Y.

Determination of mucopolysaccharides in the gingivae observable in various types of periodontal disease

Carol José Rosenberg S. *Rev.dent.Chile*
47:149-154 July-Aug. 1957

This article is a preliminary report on the studies of structural and functional changes in periodontal tissue, carried out at the Dental School of the University of Santiago de Chile.

The material investigated consisted of 28 gingival specimens which were obtained from the department of periodontics, and represented the following periodontal diseases: (1) periodontitis, 8; (2) periodontosis, 12; (3) periodontitis combined with periodontosis, 1; (4) hypertrophic gingivitis, 5; (5) desquamative gingivitis, 1, and (6) diabetic hypertrophic gingivitis, 1. These tissue preparations were examined histologically and histochemically to determine the presence of the mucopolysaccharides in the various types of periodontal disease.

Inflammatory processes varying in character and intensity were observable in all specimens. Instances of periodontosis were characterized by a chronic inflammatory process accompanied by formation of granulated tissue around the walls of periodontal pockets. The rest of the gingival tissue remained more or less normal.

In periodontitis, an inflammatory chronic reaction of the tissues surrounding the tooth roots was present, but the granulation tissue formed was diffused throughout the gingivae.

Hypertrophic gingivitis was found to be either inflammatory or fibrous. In this series, it was inflammatory and the lesions were characterized by an inflammatory infiltrate which varied in chro-

nicity and in the appearance of edema and intercellular proliferation—both epithelial and conjunctival.

In desquamative gingivitis, the chronic inflammatory infiltration was accompanied by discrete edema and by atrophy of epithelial tissue.

In hypertrophic diabetic gingivitis, the inflammatory process was intense and was accompanied by the formation of granulation tissue and lesions constituting microabscesses.

Changes in the number of mucopolysaccharides in the gingival corium were found in each of the types of periodontal diseases studied. These changes, however, were related to the characteristics and intensity of the inflammatory process present and not to the clinical classification of the specific disease type.

Inflammatory processes of the exudative type were accompanied by reduction in the number of mucopolysaccharides. Hyaline collagen tissue and necrotic tissue showed an increase in para-aminosalicylic acid, observable by the magenta red staining assumed by the mucopolysaccharides by means of the Hotchkiss-McManus test.

Sociedad Odontologica de Chile, Huéfanus numero 634, Casilla Norte/2575, Santiago de Chile

A study of the topical administration of hydrocortisone acetate, 9-alpha-fluorohydrocortisone acetate and pyridoxine hydrochloride upon oral lesions

Peter Dante Ferrigno. *J.Periodont.* 29:137-143 April 1958

A study was undertaken to determine the effectiveness of hydrocortisone acetate, fludrocortisone acetate and pyridoxine hydrochloride dental ointments on various oral lesions of an inflammatory nature. This was planned as a pilot study for possible future work with antiphlogistic and associated agents.

Of 42 patients, 14 were treated with fludrocortisone acetate, 13 with hydrocortisone acetate and 15 with pyridoxine hydrochloride. The following conditions were treated: marginal gingivitis, 7 patients; chronic atrophic senile mucositis; 1; herpetic stomatitis, 6; primary herpetic gingi-

vostomatitis, 2; periadenitis mucosa necrotica recurrens, 2; lichen planus, 15; lichoid lesion, 1; hyperkeratosis with inflammation, 2; desquamative gingivitis, 3; hormonal gingivitis, 1, and migratory glossitis, 2.

The patients were instructed to apply a treatment ointment to the lesions on one side and a control ointment to the lesions on the opposite side, three times daily, for varying lengths of time. The contents of the tubes were not known to the patients. Kodachrome transparencies were taken at the beginning and throughout the treatment phase.

Macroscopically, no differences were observed between the lesions treated by the drugs and those treated with placebos.

On the basis of this controlled study, none of the three ointments used appeared to be beneficial in the treatment of the specific lesions utilized under the conditions of this experiment.

3311 Chillum Road, Mount Rainier, Md.

Drug effect in periodontosis

Günther Imming. *Bl.Zahnhk., Zürich* 19:31
March 1958

Periodontosis usually is defined as a noninflammatory disease which affects the attachment apparatus of the teeth—the cementum, periodontal membrane and bone. It may be initiated, however, by an inflammatory condition of the gingivae associated with resorption of the alveolar crest. Instances of periodontosis were observed in which the gingival tissue remained intact, showing no clinical evidence of inflammation, although the involved teeth were extremely mobile, causing diastema and loss of osseous tissue.

Periodontosis cannot be associated with any evident disease process; occasionally it may be accompanied by systemic diseases. No direct cause and effect relation between periodontosis and systemic disease can be established, and it seems probable that the investing tooth structures are only indirectly or secondarily affected by diseases affecting the whole body.

The greatest incidence of periodontosis occurs between the ages of 25 and 35 years.

Röntgenographic examinations reveal that the radiolucent line of the periodontal membrane is

thickened where the alveolar bone has been resorbed. This occurs adjoining the cervical part of the root and sometimes in the apical region. The resorption is irregular and usually unilateral. In the affected region the lining of the lamina dura is indefinite. Resorption of the alveolar crest is observable at a later stage in which the trabeculae appear indefinite and hazy. Several pockets develop, usually prior to treatment. Hard subgingival calculus accumulates in the pockets, but this calculus accumulation is of secondary character because it follows pocket formation and is not its cause.

The result of treatment depends on the severity of periodontosis. Advanced structural lesions will not revert to normal if vitamin C therapy alone is instituted.

Clinical improvements, such as cessation of bleeding, decrease of gingival hyperemia, increase in tissue firmness and firmness of the teeth, were observed after topical application of "Sulfdont C," a sulfonamide vitamin C paste. These improvements became clinically evident after two weeks. Neither toxic manifestations nor sensitization was observed.

Potsdamerstrasse 192, Berlin W 35, Germany

Antihistamine therapy for gingival hyperplasia due to diphenylhydantoin

Jean Holowach, Don L. Thurston
and John E. Gilster. *New England J.Med.*
259:180-181 July 24, 1958

Gaillard's report (1957) of the successful use of antihistaminic therapy for the regression of gingival hypertrophy associated with diphenylhydantoin sodium therapy stimulated the authors to make a clinical trial of antihistamines for this purpose. Serial photographs were taken of several patients before and at appropriate intervals after onset of antihistamine therapy.

Four case reports, with photographs, are presented.

The administration of antihistamines did not result in any significant or persistent reduction of the hyperplastic gingival tissue. There was no obvious increase of hyperplasia during therapy.

St. Louis Children's Hospital, St. Louis, Mo.



Physiology

**Position of dental follicles
in upper jaws of human fetuses**

Gilbert Mani. *Arch.stomat.,Liège* 12:117-146
July 1957

The human tooth, as a living functional organ, develops in a harmonious and sequential manner during the following evolutionary periods: (1) growth and development including initiation, cell division, histodifferentiation, cytodieresis, morphodifferentiation and extracellular expansion; (2) calcification, and (3) eruption.

In tooth formation, therefore, three different developmental processes exist instead of the usual one or two. The life cycle of the human tooth is complicated because there are five successive and distinct phenomena involved in growth and development. Immediately after initiation there is a rapid proliferative growth of cells from the ectodermal and mesodermal layers of the oral cavity of fetuses. This proliferation is characterized by a vigorous metabolic activity and an increase in the dimensions of the enamel layers. The next stages are histodifferentiation and morphodifferentiation during which the formative cells acquire their functional specialization as well as the varied morphologic forms: incisors, canines, bicuspids and molars. These processes overlap, and they often occur simultaneously. They result in varied positions of the dental follicles in the jaws of fetuses. The cell aggregates are composed of the following three parts: (1) enamel organ; (2) papilla, and (3) dental sac.

The last period in tooth development consists of the quantitative addition of extracellular material to the morphologic structure formed in the earlier stages. This appositional stage is characterized by the regularity and rhythm of the deposition of new material, alternating phases of activity and rest and by the inability of the added material to develop independently.

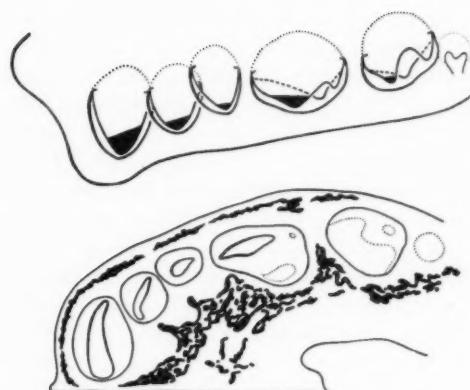


Figure 1 Upper jaw of a human fetus five months after conception

This appositional stage is followed by the processes of calcification and eruption.

The first signs of tooth development can be observed during the sixth week of embryonic life. At that time the epithelium consists of a basic layer of high cells and a surface layer of flattened cells. Later an epithelial thickening arises in the region of the dental arches to be formed and extends along the entire margin of the developing jaws. It is the primordium of the ectodermal part of the teeth, the dental lamina. Mitosis occurs in the epithelium and in the mesoderm.

After the initial formation of the enamel, the ameloblasts become shorter and form a stratified



Figure 2 Six months after conception

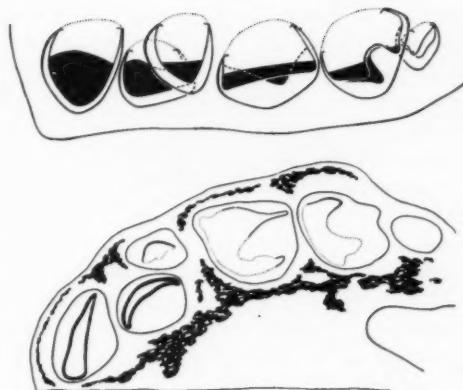


Figure 3 Seven months after conception

epithelium which keratinizes and acts as a protective cuticle for each newly formed enamel rod. The cells of the outer enamel epithelium also keratinize and form a continuous protective layer covering the entire enamel surface. This is the protective stage in tooth development which is followed later by the crystallization of the enamel.

The relation between the varied positions of dental follicles in human fetuses and the growth and development of teeth is, as yet, not fully determined. It can be assumed, however, that the dental follicles and their fibers are specifically related to the production and transfer of alkaline phosphatases to the region where the calcified matrix is formed.

It is generally accepted that the odontogenesis of human teeth begins during the sixth week after conception. In this stage the initial proliferation

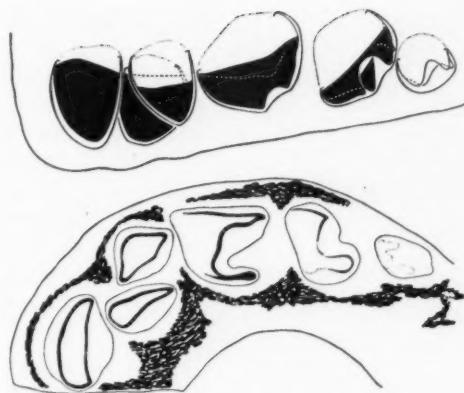


Figure 5 Before birth

of the epithelium covering the upper jaw takes place.

In later stages, the fibers of the dental follicles assume a parallel arrangement and extend coronally. The connective tissue cells then differentiate into cementoblasts, fibroblasts and osteoblasts.

11-15, Rue de la Commune, Liège, Belgium

Studies on neurophysiologic mechanisms of salivary secretion.

I. Patterns of salivation induced by electrical stimulation of chorda tympani

Y. Kawamura and M. Funakoshi.

M.J.Osaka Univ. 8:419-432 Feb. 1958
[in English]

It is well-known that the chorda tympani controls the secretion of the submandibular gland. Electrical stimulation of the chorda tympani of an animal often has been used to obtain secretions of saliva experimentally. It is generally accepted that the quality and quantity of saliva is variable depending on the sort of stimulation applied. The present work was undertaken to confirm the differences in the character of the submandibular saliva and the patterns of salivation induced by various kinds of electrical stimulation on the chorda tympani. Thirty-two adult dogs were used. The correlation between the narcotic state of the central nervous system and the function of salivary secretion was studied. The following results were obtained:

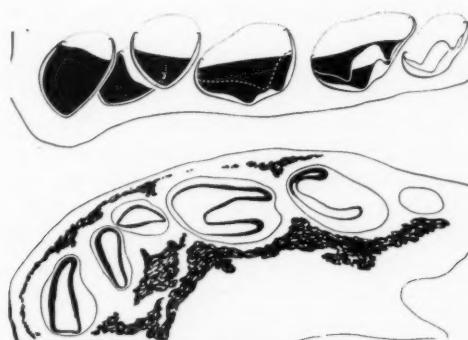


Figure 4 Eight months after conception

1. When narcosis was deeper than stage II (Goodman's classification), reflexive salivary secretion was not obtained by any kind of gustatory stimuli.
2. When the animal was in narcosis deeper than stage III, plane iii, even when the chorda tympani was stimulated directly, the animals did not secrete saliva from the submandibular gland.
3. The secretory rate was highest when a square wave was used which had a duration of 15 c/seconds, 1 millisecond and 2 to 4 volts under stage III, plane ii narcosis.
4. No relation was noted between the quantity of inorganic content of the saliva secreted and the pattern of stimulation used, but the inorganic content of the saliva was increased with the secretory rate.

Dental School, Osaka University, Osaka, Japan

An anatomical and physiological consideration in the making of an obturator

Howard E. Kessler and Arthur L. Kaltenborn, Jr.
J.Ohio D.A. 32:72-74 Spring 1958

A roentgenographic study was undertaken in an effort to show that the complete closure of the nasopharyngeal space is not necessary for so-called normal speech production, and that a sphincterlike action of the velopharyngeal closure is present which is unlike the two-stage hinge-like action of the soft palate set forth in textbooks.

Ten college students were used as subjects; five were judged to have nasal voices and five were judged to have normal voices. Three roentgenograms of the nasopharyngeal region were made of each subject: one with the structures at rest, one while the subject was phonating the ae sound, and one while the subject was compressing air for the production of the p sound.

Tracings of the positions of the soft palate, tongue and posterior pharyngeal mass were made for comparison.

The extent of the velopharyngeal closure varied in the ten subjects. In those subjects with nasal

speech, the opening into the nasopharynx always exceeded the opening into the mouth cavity during phonation. In those subjects with normal speech, the opposite condition prevailed. In three of the five subjects with nonnasal speech, there was a complete closure of the nasopharynx; in the remaining two subjects, the distance from the velum to the posterior pharyngeal wall was 3 mm. and 1 mm., respectively.

Good voice quality appears to be possible without a complete closure of the nasopharynx, so long as the opening into the mouth is much greater than the opening into the nasopharynx. Further investigation is necessary, however, before the results noted can be considered conclusive.

Other differences in the movement in the velopharyngeal region were noted between the two groups. Among those with nasal speech, little difference was noted between the position of the velum at rest and in phonating the ae sound. However, in each of the subjects with nasal speech some forward movement of the posterior wall of the pharynx was seen on phonation of the ae sound. Evidence of muscle contraction on the posterior pharyngeal wall, as revealed by its forward movement and the bulge of Passavant's bar, was seen in almost all the subjects with nasal speech, without a concurrent posterior movement of the velum. In the subjects with normal speech, the forward movement of the posterior pharyngeal wall that occurred in the phonation of the ae sound was accompanied by a posterior movement of the velum.

It appears that for the best voice quality, the velopharyngeal closure need not be absolutely tight but the opening into the mouth should be much greater than the opening into the nasopharynx. It also appears that nasality is caused by a flaccidity of the velum accompanied by a forward movement of Passavant's bar which fails to reduce the size of the opening into the nasopharynx sufficiently to prevent the vibrating breath stream from escaping through the nose.

Cleveland Hearing and Speech Center, Western Reserve University, Cleveland, Ohio

Education

**Enlarged transparent tooth models:
teaching aid for operative dentistry**

Bengt Magnusson. *Svensk tandläkar.Tskr.*
51:241-252 May 15, 1958

In dental education, especially in teaching operative dentistry or endodontics, a great need exists for enlarged transparent tooth models which demonstrate the relations between the hard and soft tissues and the pulp.

Previously, these relations could be visualized only with the help of sections cut through natural teeth or of handmade models which often showed oversized pulp horns. Both mediums were inadequate to demonstrate the danger of pulp exposure during cavity preparation.

A technic of constructing enlarged translucent tooth reproductions was developed by the author and is used at the Royal School of Dentistry in Umeå, Sweden. This technic, a modification of Born and Peter's method which frequently is used in embryologic and paleontologic research, involves serial grinding of natural teeth and reproduction of the sections as parts of the enlarged laminated tooth models.

To permit serial grinding, the selected tooth types are embedded. The following two plastic resins were found to be the most suitable materials for making the reproductions: (1) Cee-mar's embedding resin, and (2) polymethylmethacrylate.

At the Swedish school, polymethylmethacrylate was preferred because it permits a more perfect reproduction and, therefore, a better visualization of the finest details. Polymethylmethacrylate, however, requires a more complicated construction process than the embedding resin.

The embedded tooth is ground in layers of equal thickness by the use of silicone carbide paper in a Croft serial grinding machine. All layers are photographed and enlarged. With the



Figure 1 Section of study model of molar, enlarged, situated 1.4 mm. below highest cusp

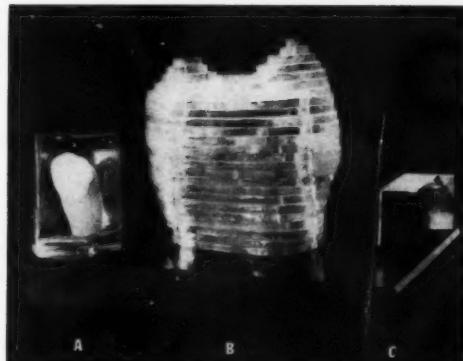


Figure 2 Construction of study model. A—natural tooth (embedded). B—study model with edges of layers unsMOOTH to show technic of preparation. C—brass structure with a soldered carrier to hold object

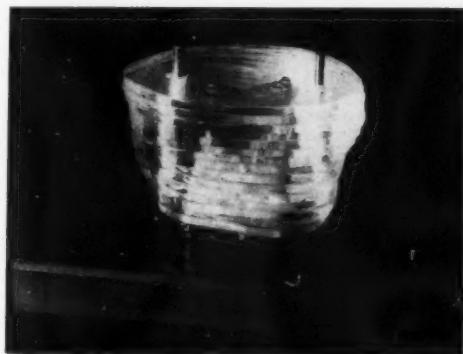


Figure 3 Model after removal of several layers

aid of the enlarged pictures, a Plexiglas model is constructed. The different layers are held together by stainless steel pins.

To secure maximum contrast, the colors of the resin and the object are of primary importance. Ceemar's embedding resin can be colored with methylene blue. After each grinding, the pulp cavity was indicated on each layer with hematoxylin. When methylmethacrylate is used, the most favorable results can be obtained by coloring only the dentin on each layer with gentian violet after each grinding. It appears unnecessary to color the methylmethacrylate.

A metal structure, embedded with the object, facilitates the orientation of the different layers.

For teaching purposes, it seems appropriate

to construct the study model about five times the size of the original tooth. Each layer of the model will then be about 1 mm. thick, and the crown of a permanent molar will contain about 40 layers.

The finished study model shows the anatomy of the tooth and also, because of its transparency, the position of the pulp. The anatomy of all tooth structures can be studied easily in the different cross sectional layers by removing one or more of them. Among other subjects, dental morphology and the relation between the various classes of cavity preparation and the pulp can be taught and the position of the dentinoenamel junction clearly demonstrated.

Norrländsgatan 18, Umeå 1, Sweden



Cytostatic drugs and malignant oral tumors

A. Ravina and M. Pestel. *Presse méd.* 66:313-314 Feb. 22, 1958

The records of 120 patients with malignant oral tumors treated with cytostatic preparations demonstrated that the actinomycins C and D are the easiest to manage. Hemorrhagic complications occurred occasionally but less often than if other cytostatic agents, especially nitrogen mustard, were used. Other manifestations of intolerance such as irritation of the oral or digestive mucosa, stomatitis, anorexia, nausea, abdominal pain and diarrhea were transitory and comparatively easy to control or to prevent.

R 261 (N-desacetylthio-colchicine), a synthetic sulfurated derivative of colchicine, with greater antimitotic power and less toxicity than colchicine, was given intravenously to 20 patients. The majority failed to show any improvement. In two patients with squamous cell carcinoma of the alveolar mucosa, the tumor seemed

to regress. Treatment, however, had to be discontinued because of the intense leukopenia to which it gave rise. In a few instances the progress of tumorous growth was arrested for periods of varying length. R 261, also available in a 2.5 per cent ointment, was applied to various superficial or cutaneous tumors in the maxillofacial region, either to the primary tumor or to its metastases, whether or not the neoplasms were ulcerated. The high potency of this drug, however, makes it difficult to manage, especially because R 261 is capable of causing paroxysmal pain in or about the tumor and its metastases. The existence of metastatic development was sometimes revealed by paroxysmal pain spontaneously occurring in remote regions after R 261 medication. Similar focal pain has been experienced, although rarely, after an administration of actinomycin or E 39 (5-amino-7-hydroxyimine-2,5-dipropoxy-3,6-benzoquinone) and other cytostatic agents now under investigation.

Azan (8-azaguanidine, sodium 5-amino-7-hydroxy-triazolopyrimidine) may inhibit the growth of certain cancer cells by acting on the purine metabolism. Well-defined regression of the functional and general symptoms, obtained by the use of Azan in a few patients, was never accompanied by any significant change in the size of the tumor.

120 Boulevard Saint-Germain, Paris 6, France

**Diagnosis and treatment of fractures
of the temporomandibular joint**

Gerhard Steinhardt. *Fortschr.Kief.Ges.Chir.*
2:7-14, 1957

Diagnosis and treatment planning in fractures of the temporomandibular joint depend on the practitioner's ability to determine accurately the degree of damage in the condylar region. Surgical intervention such as an open reduction or complete condylectomy should be attempted only after a clinical examination and study of an adequate series of roentgenograms. These roentgenograms must represent both the injured and uninjured condyle in at least three planes. They have to show the extent of the fracture and the resultant relation between the body of the bone and the fragments, thereby permitting an accurate diagnosis, or better, classification of the fracture.

In 1954, Kurt H. Thoma suggested that fractures in the condylar region should be classified as condylar and subcondylar fractures. The second group may be subdivided into four types: (1) fractures without displacement; (2) fractures with displacement; (3) simple fracture-dislocations, and (4) fracture-dislocations with complete displacement of the condyles.

Collum fractures frequently are associated with dislocation. Fractures of the condyles generally can be diagnosed by the position of the mandible and by the impaired function. Roentgenographic examination giving a simultaneous bilateral view permits the evaluation of the relative position of the condyles to the base of the skull and to each other.

The indicated three-plane projection can be made with a customary dental x-ray unit, the patient being seated in the dental chair. It is important, however, that an aluminum filter of at least 1 mm. thickness be interposed between the tube and the subject because of the short target-skin distance utilized in the first two exposures.

Treatment of fractures of the temporomandibular joint, including fracture-dislocation, should be conservative. Its primary aim consists of restoration of an adequate function.

The following are indications for surgical intervention:

1. Unilateral fractures with considerable overriding of fragments. Immediate surgery will avoid derangement of the joint on its opposite side.
2. Bilateral fractures with considerable overriding of fragments, resulting in an open bite.
3. Severe displacement beyond the fracture line, especially if a condylar fragment is situated at an angle to the ascending ramus or extends over it.
4. All fracture-dislocations with separation of the condyle from the inner or outer aspect of the joint.
5. Partly healed fractures which are associated with arthralgia, abnormal function or malocclusion.

Figure 1 Fracture of the collum base. Above: Before treatment. Below: Two years after conservative treatment

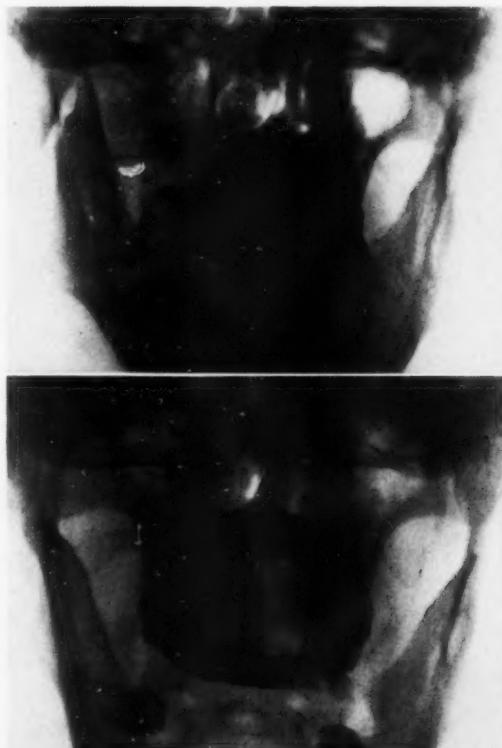




Figure 2 The same case. Three-plate exposure (Parma's method)

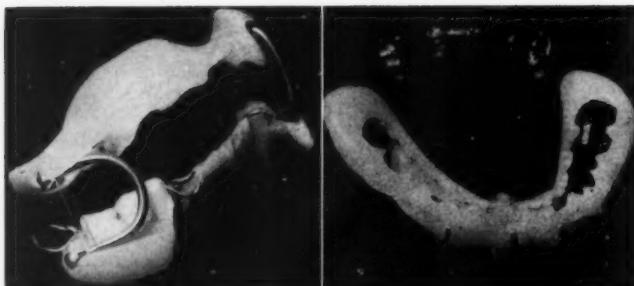
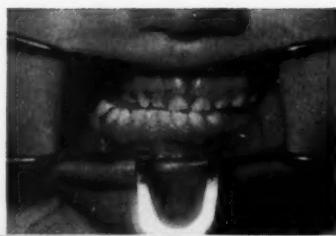


Figure 3 Partial dentures serving as fracture dressing and coiled springs used in conservative treatment of condylar fractures

Figure 4 Fracture-dislocation with condylar displacement. Left: Before treatment. Right: After treatment



Roentgenogram (Parma's method)

The type of splinting used depends on the presence or absence of a full complement of teeth. If no tooth loss has occurred, wire splints will be sufficient. Recently, however, the use of acrylic splints has obtained more satisfactory results.

In edentulous patients, dentures may be inserted which are anchored by means of circumferential wires. The upper and lower dentures should be connected by coiled springs to prevent strain on the fractured joint.

In instances of severe bilateral fracture-dislocation, this treatment often fails in preventing forward displacement of the mandible, which results in open bite. Surgical reduction of one condyle is necessary to restore adequate function.

This treatment method can be combined with the orthodontic correction of malocclusion whether present prior to fracture or produced by it.

Frequently, there has been a tendency to overlook the primary principles of fracture treatment in fractures of the temporomandibular joint. The fact that in this region surgical hazards are greater than in simple bone fractures is no justification for ignoring established orthopedic rules governing the preservation and restoration of function in specific parts of the skeletal system. The aim of treatment of fractures of the temporomandibular joint still is the restoration of anatomic continuity and undisturbed function.

Every fracture of the temporomandibular joint must be examined postoperatively. The final result can be judged by the esthetic appearance, patient's comfort, adequate function, and, last but not least, restored anatomy.

An der Schleifmühle 46, Bremen, Germany

Neck dissection: a rational therapeutic measure

John B. Davis. *Clin. Med.* 5:667-669 May 1958

The primary lesion of any malignant process rarely kills the patient, but its metastases frequently are lethal. The degree to which metas-

tases can be prevented or controlled is the main factor that determines the prognosis for cure.

Often, a mass in the neck is either the primary or main finding in cancer arising in the oral cavity. Most persistent lumps in the necks of adults are malignant. All painless, persistent masses in the neck should be considered metastatic cancer until proven otherwise.

Patients with primary lesions about the face or oral cavity usually complain of a sore which fails to heal. If the lesion is farther back in the throat, they complain of dysphagia, pain in the ear, or respiratory obstruction.

Most primary sources of cancer in the oral cavity and face are easily detectable by observation and palpation. If a primary lesion is found, a biopsy should be made at once. Should the lesion be tuberculous or syphilitic, the biopsy will do no harm, but a delay in making the diagnosis of cancer may result in the death of the patient. If no primary source is found, a thorough general examination should be done.

Death from oral cancer usually is due to a constricting, eroding cuff of metastatic tumor in the neck. Too much emphasis has been placed on the treatment of the primary lesion, which is often a cosmetic problem, too little on the neck which is a survival problem. In a large series of autopsies on patients dying of head and neck cancer, 83 per cent had no cancer below the clavicles.

Tissue tolerance limits make it difficult, often impossible, to deliver a cancericidal dose of radiation to an entire side of the neck. Block dissection of the neck is the only present means of cure. The rich lymphatic supply of the oral cavity and the massaging action of mastication on the tumor are responsible for the early lymphatic metastasis of many intraoral lesions. The five-year cure rate for operations on early metastases is 50 to 60 per cent. The cervical metastases can be controlled only by dissection of the neck, and this should be done as an en bloc procedure with the primary lesion, or as soon as the primary lesion has been eradicated.

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History

Amalgam filling anno Domini 1601

L. J. Baume. *Österr.Zschr.Stomat.*
55:188-193 April 1958

The early history of amalgam is so intimately associated with alchemy and, therefore, with men of questionable scientific integrity that, even more than a century after its introduction as filling material, the stigma still persists.

The derivation of the word "amalgam" from the Greek word *malagma*, meaning a soft mass, is in question. In the medieval alchemical literature, the Arabic words *al-maghām* or *amalgama* appear, meaning "to soften."

Metal-mercury compounds (alloys) were used in alchemy, the medieval chemical science and speculative philosophy, to transmute base metals into gold, to prepare a universal remedy against all diseases and to find an elixir of love and eternal life. The specific alchemistic sign for amalgam (Fig. 1) appears in many works of the middle ages.

The use of amalgam as a dental material was uncommon before the beginning of the nineteenth century. Under the name of "silver paste," it was poured from small spoons directly into the tooth cavities. Pulp irritations frequently followed this form of treatment. Chapin Harris, the co-founder of the first dental school of the world (Baltimore, 1840), called amalgam "the most pernicious of all filling materials that has ever been employed." A number of dentists in different countries, however, were attracted to amalgam because of its various desirable properties.

Although amalgam was named and used by the French dentist, L. Regnart, in 1818, another French dentist, O. Taveau, claimed that he invented this alloy in 1826, named it *pâte d'argent*, used it in his practice and made it available to other dentists.

It seems certain that the dentists of the eighteenth century did not know amalgam. Neither P. Fauchard nor E. Bourdet, the most profound dental writers of that century, mentioned it in their books, although they described gold, lead and tin foil and recommended their use as filling materials.

At the beginning of the nineteenth century, a forerunner of amalgam appeared under the name Darcey's metal or alloy. It consisted of bismuth, lead and tin. It became liquid at a temperature of about 100° C.

Darcey's alloy was mentioned in D. J. Goblin's book, *Manuel du Dentiste*, in 1827. In the dental literature, amalgam was recommended as a filling material by J. Lefoulon in 1841. He distinguished between two amalgam types, that of Regnart, which he accepted, and that of Taveau, which he declined to recommend because of "its unesthetic discoloration, its shrinkage, its porosity and its undesirable properties causing gingival and periosteal inflammations." In his book, *Nouveau Traité Théorique et Pratique de l'Art du Dentiste*, Paris 1841, he closed one of the chapters with the interesting prophecy: "The day will come when a plastic material will be discovered which will combine an extreme stability and durability with an enduring color resembling that of natural teeth."

English dentistry knew amalgam even before Taveau. There it was known as "Bell's Putty" and "Newton's Alloy."

The German literature mentioned Friedrich Hirsch (1796) who used a quick hardening paste for fillings which probably was an amalgam.

Amalgam was introduced to the United States by dental charlatans, and, therefore, dentists objected to the use of this material and the introducers were run out of town. In 1845 a pledge was required of the members of the first national professional dental organization: "Resolved: That any member of this society who shall hereafter refuse to sign a certificate pledging himself not to use any amalgam and, moreover, protesting against its use under any circumstances in dental practice, shall be expelled from the society." This was the beginning of the "amalgam war," which continued during the last decades of the nineteenth century.

A review of the medical and dental literature



Figure 1 Alchemistic sign of amalgam

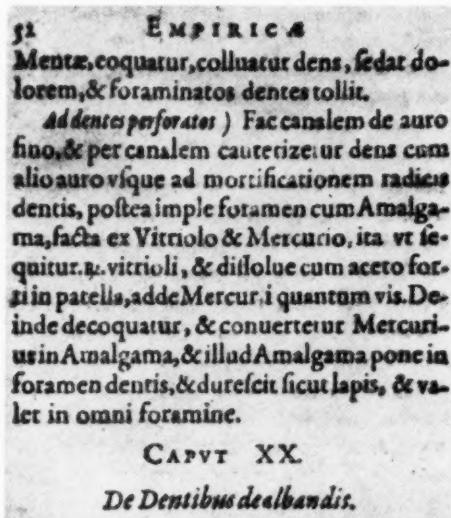


Figure 2 Prescription and direction for use of amalgam as filling material, written in 1601 in Latin

of the last four centuries pertaining to amalgam and its use as a dental material showed that German dentists knew it and used it long before the French or the British.

In Tobias Dornkreilus' book, *Bibliopola Nicolai Bassai*, published in 1601, the prescription for amalgam and the direction for its use as filling material, appeared (Fig. 2). The translation of the prescription, number 52, written in Latin, is as follows:

CAPUT XX.

De Dentibus dealbandis.

52. **E M P I R I C A**
Mentis, coequatur, colluatur dens, sedat do-
lorem, & foraminatos dentes tollit.
Addentes perforatos) Fac canalem de auro
fino, & per canalem cauterize: ut dens com-
alio auro vsque ad mortificationem radieis
dantis, postea imple foramen cum Amalga-
ma, facta ex Vitriolo & Mercurio, ita, ut se-
quitur. p. vitrioli, & dissolute cum aceto for-
gat in patella, adde Mercur. i quantum vis. De-
inde decoquatur, & conueretur Mercurius
in Aanalagma, & illud Amalagma pone in
foramen dentis, & durefcit sicut lapis, & va-
let in omni foramine.

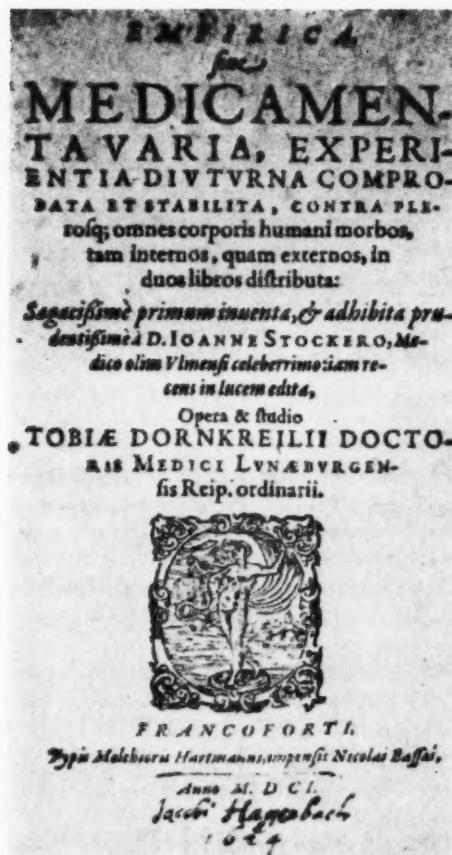


Figure 3 Title page of the drug encyclopedia in which the amalgam prescription appeared. Signature "Jacobi Hagenbach, 1624" is that of the first owner of the book

"Against holes in the teeth. With a fine gold instrument the diseased tooth should be trephined. With another gold instrument it should be cauterized until its root (pulp) is deprived of life. The opening (cavity) is filled with amalgam which can be produced by placing sulfate (of some metal) and mercury together.

"p. Take vitriol and dissolve it with strong acids in a bowl. Add mercury. Boil it and you will have amalgam. Pour it into the tooth cavity and it will become as hard as a stone and will remain stable in the cavity."

Under vitriol, probably copper sulfate was meant. The use of amalgam as a filling material

at the end of the sixteenth and the beginning of the seventeenth century seems thereby demonstrated.

Tobias Dornkreilius, a "municipal wound and tooth doctor" of the city of Lüneburg, Germany, indicated in his book that the prescription of amalgam as a filling material was taken verbatim from an old alchemistic incunabulum.

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Dentistry in the ancient Arab civilization

Amedeo Bobbio. *Rev.A.Paulista Cirurg.Dent.*
11:320-341 Sept.-Oct. 1957

After the destruction and chaos accompanying the fall of the Roman Empire, many of the cultural works disappeared. Others, preserved and safeguarded by the monks in Europe and by the Arabs in the Middle East, survived and were handed down intact to later generations. Among the treasures so preserved in various flourishing Arabian schools of medicine were the ancient texts of Hippocrates, Dioscorides, Galen, Oribasius, Alexander of Thrakes, and Paul of Egina. At first, these works, painstakingly translated into Arabic and assiduously commented on, led to the Hellenization of medicine and dentistry among the Arabs. Later, however, the teachers of Islam began to make contributions of their own, based on experience and reasoning. Arab dentistry and medicine reached the height of their development in the tenth, eleventh and twelfth centuries, but even after the decline of the Arab dominion in Spain, they continued to exert a powerful influence on European medicine until the seventeenth century.

The exceptional clinical and therapeutic advances made by the Arabs in dentistry are most clearly to be seen in the works of three great men—Rhazes, Avicenna and Abulcasim. Rhazes is said to have written more than 200 works, none of which has come down to us in a complete copy of the original. Of the Latin translations to

be found in various libraries, three are especially important: the *Kitāb al-Mansūrī*, dedicated to Prince Almansor, which is an encyclopedia of the basic medical subjects; the *Liber de Pestilentia*, a work on smallpox and chickenpox, published in Venice in 1498; and the colossal *Kitāb al-Hāwī fil-tibb*, in 24 volumes, which is a compendium of therapeutics from all the authors known up to that time. The most interesting of these from the point of view of dentistry is the last one, from which it is possible to extract a veritable treatise on diseases of the mouth and the teeth.

Avicenna's great work, the *Canon Medicinae*, provides exact descriptions of the anatomy, physiology, and innervation of the teeth. Dental prophylaxis and hygiene were emphasized by Avicenna who laid down eight rules which he called indispensable for the preservation of the teeth.

The thirtieth volume of Abulcasim's *At Tasrif*, a compendium known in Latin as *Practica* or *Liber servitoris*, is a treatise on surgery. It was first translated into Latin by Gerard of Cremona and later became the most valuable source book for all surgeons from the thirteenth century on, even including Fabricius of Acquapendente, the greatest surgeon of the Renaissance. A copy of this work, dating from 1300 and illustrated with miniatures, is preserved in the Faculty of Medicine at Montpellier in France. In making his compendium, Abulcasim drew much on the work of others, but his own contribution was substantial and the illustrative material he included in his text is invaluable, showing the surgical instruments then in use.

For those who can read it in the original, this work, with its illustrations from Persian and Latin manuscripts and books, is a treasure of information about the early history of dentistry. In closing, the author quotes a saying by De Vecchis: "He who does not love the history of his own discipline is like one who does not love the time of his childhood and his youth."

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**Acrylic template as aid
in multiple jacket preparations**

Ralph W. Otterstrom. *J.South. California D.A.*
26:261-262 July 1958

A dental patient had teeth that were badly crowded, malposed, and filled with numerous synthetic porcelain restorations in various stages of deterioration. The patient did not desire orthodontic procedures, but did wish an esthetic improvement in the involved teeth. On a duplicate of the original study model, the proposed preparations and a preliminary wax carving showing the desired result were made. On a second copy of the study model, a template was made of self-curing acrylic resin, as follows: The anterior half of the model was coated with liquid foil to a

point at least one tooth on each side beyond the area to be restored. The polymer then was sprinkled on a little at a time, and wetted with the monomer in the general outline of the template design. The acrylic resin was built up to a thickness of about 4 mm. The template was bench cured for about an hour and then immersed overnight in cool water. Flasking was unnecessary.

The template was separated from the model and trimmed so that the incisal third of the labial surfaces of the teeth to be restored were exposed. Figure 1 shows the completed template in place on the study model. If undercuts inhibit the easy removal of the template from the model, they should be reduced.

The preparations were made in one sitting with high-speed equipment. The template was fitted to the teeth at intervals during removal of tooth structure, so that an accurate check could be made on the depth of some of the critical cuts on the teeth which were farthest out of position. It was found that these badly malposed teeth could be reduced sufficiently so that the finished restorations could be made in series, to improve the esthetics and the spatial arrangement of the

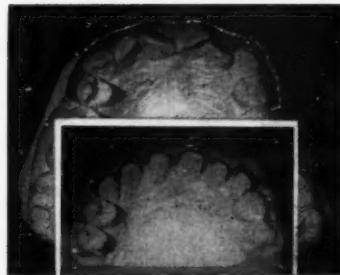


Figure 1 Template on preoperative model. Inset: Template on prepared model. Note depth of cuts



Figure 2 Occlusal views of preoperative and postoperative models

teeth. Figure 1 (inset) shows the template in place on a model with the preparations complete. Figure 2 shows occlusal views of the preoperative model and the postoperative model.

2556 Fourth Avenue, San Diego, Calif.

Implant dentures today

Roy L. Bodine, Jr. *J.Implant Den.*
4:22-27 May 1958

Implant dentures have now been used for about ten years. A considerable number of successful mandibular implant dentures have been observed for five, six and seven years. It is no longer possible to dismiss the implant denture as a fad, incompatible with health, and of limited function and short life.

A rather uniform technic has begun to emerge, involving a surgical bone impression, maximum extension of the bone implant area, an open alveolar ridge area, and a tendency to rely on an immediate temporary superstructure for early mastication and to stabilize the implant substructure during mucoperiosteal reattachment in lieu of screws or circumferential wiring.

One fact has been proved: implant dentures are enthusiastically accepted by patients who cannot tolerate mucosal supported dentures. This is because a properly constructed implant denture superstructure stays in place and never comes loose except when the patient desires to remove it. Of even greater importance, in mastication no pressure is felt on the underlying mucosa.

Complications, when they arise, seem to be limited to the soft tissue and usually respond to treatment. The clean, healthy mouths seen five and more years after insertion of the implant denture attest the tolerance of oral tissue to the implant principle.

Although "the American approach" is generally followed, several divergent ideas have arisen. Marziani of Italy uses a swaged tantalum mesh for the substructure to which abutments are attached by screws; he fabricates this during one prolonged oral surgical operation. Bello and Areal provide strength and stability to the substructure by using a large mass of thick metal. Behrman has departed from the basic principle of the implant

denture; he implants electromagnets in the alveolus to attract and stabilize a conventional type of denture.

There is much more to be learned about implant dentures. The success already obtained indicates that the implant denture eventually will find at least a limited place in prosthodontics. The surmise of many that cellulitis, osteomyelitis and generalized infection would result from penetrating the oral mucosa with an implant abutment has been disproved. The implant denture should be considered only where conventional dentures have failed; even then, the benefits to be derived should be weighed against the uncertainties involved before the calculated risk is assumed. The implant denture probably will become an integral part of prosthodontics by 1962.

406 Dickman Road, Fort Sam Houston, Texas

Some notes on alginate impression material

H. F. Atkinson, H. I. Gill and R. W. Shepherd. *Australian D.J.* 3:184-185 June 1958

Excellent clinical results with alginate impression material can be obtained when the following method is used: A plain stock tray or special metal tray is warmed until applied sticky wax melts and flows freely over the whole of the metal surface. Mixed alginate material is then added while the wax is still molten and the impression is taken in the usual way. The impression is removed from the mouth, rinsed, "fixed" if necessary, and cast immediately by the two part technic. Distortion occurs if casting is not carried out immediately or if too much plaster or stone is applied to the impression at one time. A further advantage of the molten sticky wax method is that a tray can be removed from the cast by warming and the material then dissected without damage to isolated teeth.

The suggested technic is based on experiments designed to study the possible differences in the retention of an alginate impression material when used on a flat, nonperforated metal plate with molten sticky wax as the retaining medium, compared with the retention obtained with a perforated metal plate without wax.

193 Spring Street, Melbourne, Australia


Orthodontics
**Adult orthodontics
and the general practitioner**

Marvin C. Goldstein. *J.Canad.D.A.* 24:261-281
May 1958

Although no adult is too old to have his teeth straightened, until recently little orthodontic treatment was performed on adults. Many adults have suffered years of unhappiness because of crooked teeth or malocclusion resulting in a facial disfigurement or unpleasant smile. Perhaps many of these people were financially unable to secure orthodontic treatment as children; others were told they were too old for such treatment, so they continued with their deformity without knowing that it could be corrected.

In the past several years the author has treated orthodontically more than 100 adults up to 67 years old. The age of the patient does not seem to be an important factor. Major considerations are the condition of the teeth and supporting structures, the desire of the patient and his general health. Under proper conditions, no person is too old to have his teeth straightened. The decision as to whether or not to treat, however, demands study and careful analysis. The malocclusion should be a hindrance to the patient's physical or mental well-being.

A technic for obtaining minor tooth movement is based on the use of elastic thread ligature. The ligature is of rubber covered by nylon, and is available in light, medium and heavy stretch. It handles easily, its force is gentle and continuous, and it does not require too frequent adjustments. When used alone or with steel ligature wire, it permits teeth to be moved labially, lingually, mesially or distally, and elongated or depressed.

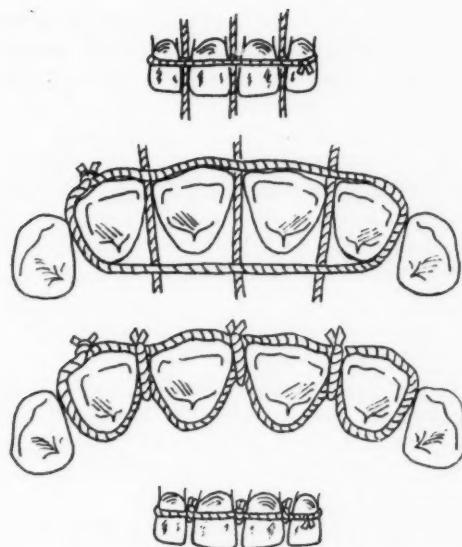


Figure 1 Using elastic thread ligature to close anterior spaces



Figure 2 Moving a tooth toward an anchor unit at right



Figure 3 Technic for bringing elongated or depressed teeth into alignment

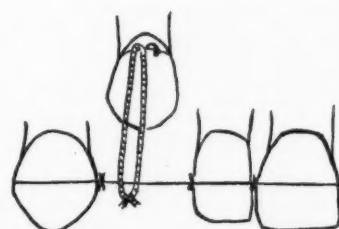


Figure 4 Bringing down an unerupted tooth

Figure 1 shows the manner in which the elastic thread ligature can be tied for closing anterior spaces. A piece of medium elastic ligature is tied around the teeth to be moved together, and a piece of light thread ligature is placed between each interproximal space and tied so that the original ligature is drawn together (see lower two sketches in Figure 1).

A dab of acrylic resin can be placed on certain of the teeth, if necessary, to act as a band or stop for the ligature and to prevent it from slipping gingivally.

If one or several teeth are to be moved a greater distance than others, two or more of the teeth that are remaining stable should be wired together to form an anchor unit (Fig. 2). The elastic thread ligature then is tied from the anchor unit around the tooth or teeth to be moved, causing the tooth or teeth to move toward the anchor unit.

Figure 3 shows how elongated or depressed teeth can be brought into proper alignment.

The ligature has been especially valuable as an adjunct in bringing down deeply embedded, unerupted incisors and cuspids. The operator, at the time the unerupted tooth is uncovered, ties a stainless steel wire around the neck of the tooth and attaches an elastic ligature which then is tied to an arch wire (Fig. 4). This will provide a continuous, gentle movement over an extended period. Rotations and other movements can be accomplished. The common technics presented in the literature and utilizing silk ligature and stainless steel can be adapted for the elastic thread ligature technic. The examples shown are such adaptations and are not original. The elastic thread ligature provides a better and simpler means of obtaining minor movement of teeth than has been possible heretofore. The movement is gentle, automatic and fast and, in indicated in-

stances, will enable the general practitioner to perform a valuable and appreciated service.

950 West Peachtree Street Northwest, Atlanta, Ga.

Edmund H. Wuerpel

H. C. Pollock. *Am.J.Orthodont.*
44:382-384 May 1958

Edmund H. Wuerpel (1866-1958) was a distinguished artist, an honorary member of the American Association of Orthodontists, and the most important layman contributor to the creation of the specialty of orthodontics. Dr. Wuerpel was born in St. Louis, where he studied engineering, architecture and art. After studying art in Europe, he returned to St. Louis as an instructor in the Washington University School of Fine Arts, becoming director of that school in 1908. Earlier, he had become an inspiration to Edward H. Angle and his students in orthodontics. Wuerpel lectured on the relation of art concepts to orthodontics. He discussed the contour, shape, growth and beauty of the human face as related to physical changes incident to orthodontic treatment. He lectured before orthodontic societies in various cities in America.

He painted more than 400 landscapes, murals and portraits. Some of his murals decorate the state capitol building in Jefferson City, Mo. Wuerpel was a friend of the American artist, James Whistler. Wuerpel retired from Washington University in 1938, but continued for 16 years as director emeritus of the art school. He died at the age of 91 years on February 24, 1958, in Wellesley Hills, Mass.

He broadened the scope and vision of the specialty of orthodontics.

3207 Washington Boulevard, St. Louis 3, Mo.

Public health
dentistry

**The effect
of a single topical application
of stannous fluoride on the incidence
of dental caries in adults**

Joseph C. Muhler. *J.D.Res.* 37:415-416
June 1958

The effectiveness of a highly concentrated solution of stannous fluoride for the partial control of dental caries in adults was tested.

About 500 Indiana University freshmen were divided into two groups. All received a prophylaxis, a seven-film bitewing roentgenographic examination and a clinical examination. Those in Group 1 received a single application of distilled water, those in Group 2 a single application of a 10 per cent unbuffered aqueous solution of stannous fluoride.

One year after the topical treatments, those in Group 2 had 24 per cent less dental caries when evaluated by the DMFT index and 16 per cent less when evaluated by the DMFS index, than those in Group 1. These reductions were significant at the 0.04 and 0.08 levels of confidence, respectively.

Indiana University, Bloomington, Ind.

**Cooperative dental care
for indigent children**

R. S. Rogers, Jr., and Keith B. McGillivray.
Oregon D.J. 27:2-4 June 1958

Since the Elks-Lane County Dental Clinic opened in January 1951, some 1,400 children received needed dental care at no cost to them, their parents, guardians or the Lane County Welfare Commission. The program was worked out by Elks Lodge No. 357 of Eugene, Ore., in co-operation with the Lane County District Dental Society and public school medical personnel. The

Elks lodge has spent over \$38,000 on its dental program, for construction of the clinic, equipment, supplies, maintenance, and the salary of a dental nurse.

Members of the Lane County District Dental Society contribute their services. Dentists who do not serve at the clinic often provide dental treatment in their own offices.

The Dental Clinic Committee consists of two members of the Elks lodge, two members of the Lane County District Dental Society, and the school physician of the Eugene public school district no. 4. Requests for dental care are cleared by the school principal and school nurse according to the urgency of needed care and the financial distress of the family. The cases are reviewed by the school physician, and are then passed on by members of the Dental Clinic Committee, which meets monthly. The final decision lies solely with this committee.

When the child is accepted for dental treatment, a note is sent the parents by the school physician. The parents are responsible for transporting the child to and from the clinic. Parents must sign a statement granting permission for dental care. This is a medicolegal precaution to prevent malpractice suits against the clinic. When the signed permission form is returned to the office of the school physician, a dental chart is typed and sent to the clinic. A first appointment is made by the school physician's office, and subsequent dental appointments are made by the dental assistant in the clinic.

The Elks-Lane County Dental Clinic opens each year in mid-October. It is open only on the half-days when dental society members are available, and is closed during school holidays and vacations.

Clarence Hine, superintendent of schools in Eugene, states: "The unusually large number served, the degree of cooperation among the agencies involved, and the great amount of good done the children, have commended the clinic . . . as one of the finest cooperative enterprises of which I have known in thirty years of public school work. The Elks lodge, the Lane County District Dental Society, and the school health agencies deserve great credit for the success of the clinic."

927 High Street, Eugene, Ore.

**Dental conditions
and related psychological factors**

Noel Kaho. *J.Oklahoma D.A.* 48:5-7 July 1958

A study of the dental condition of the children in the Will Rogers Junior High School, Claremore, Okla., made by the mental health committee of the Oklahoma State Dental Association, developed numerous correlations.

The average DMFS rate, plus a count of teeth extracted because of advanced decay, was 13.64. The average scholastic grade was 74.3. The grade average rose when the DMFS rate moved from the median line toward DMFS zero. The grade average fell when the DMFS rate moved in the opposite direction toward rampant decay. For example, at DMFS 5 the average grade was 75.9. At DMFS 22 (an equivalent distance from the median), the grade average was 70.8.

A more striking difference occurred in a study of the periodontal conditions. A modification of the Russell periodontal score was used, the healthy gingivae being scored zero and the opposite end of the scale, where gingivitis was severe with hyperplasia, being scored 4.

Where the periodontal tissues were graded zero, the DMFS average rate was 7 and the scholastic grade average was 81. In the second category, where a mild gingivitis existed in occasional spots, the DMFS rate was 12 and the grade average was 76. In the third category, the DMFS rate was 17 and the grade average 70. In the fourth category the DMFS rate was 20 and the grade average 65. In the fifth category, a surprise occurred: the DMFS rate moved down to 19 and the grade average moved up to 72.

In the group of children with DMFS rates of from 0 to 5, 85.3 per cent were boys; there was no instance of severe gingivitis or of moderately advanced periodontal disease in this group.

In the group with DMFS rates from 22 to 59, no child had a periodontal score of zero.

In the group with DMFS rates of from 0 to 5, 44 per cent of the children had not been absent from school a single day. In the group with high DMFS rates of from 22 to 59, only 28 per cent had perfect school attendance records.

In the Stanford achievement test, in the group with high DMFS rates, 75 per cent of the children were below the standard for their grade,

whereas in the group with low DMFS rates, more than 50 per cent of the students were above the standard for their grade.

Only two families did not own a television set, yet more than 50 per cent of the children never had received dental care.

417½ West Third Street, Claremore, Okla.

**Caries susceptibility tests,
hyaluronidase activity of saliva
and dental caries experience**

G. H. Rovelstad, J. H. Geller and A. H. Cohen. *J.D.Res.* 37:306-311 April 1958

A study was made to demonstrate the relation of various characteristics of saliva to dental caries experience and to salivary hyaluronidase activity. The subjects were 1,049 naval recruits, of whom 63 showed no evidence of dental caries or of dental caries experience. The following conclusions were noted:

1. There is a direct relationship of the salivary lactobacillus count to dental caries experience as revealed by the number of DMF teeth and number of carious teeth present in groups at the time of the test. The greater the lactobacillus count, the greater the caries experience.
2. There is a direct relationship of the acid-producing ability of saliva in a glucose medium as determined by the Snyder test to dental caries experience as revealed by the number of DMF teeth and number of carious teeth in groups. The greater the acid-producing ability, the greater the caries experience.
3. There is an inverse relationship of the rate of flow of stimulated saliva to dental caries experience in groups.
4. There is an inverse relationship of the acid-neutralizing ability of the saliva sample supernatant after centrifuging at 1,200 G. to caries experience in groups.
5. There is no relationship of the pH of the saliva sample supernatant after centrifuging at 1,200 G. to caries experience in groups.
6. There is no relationship of hyaluronidase activity of saliva to dental caries experience in groups.

Dental Research Laboratory, U. S. Naval Training Center, Bainbridge, Md.

**Fluorine and dental health
in southern Sweden: an epidemiological study**

Sven Sellman, Arvid Syrrist and Gösta Gustafson.
Odont.Tskr. 65:61-93 April 1958 [in English]

An investigation was undertaken to study the quantitative relationships between the fluoride content of drinking water and the incidence of caries and mottled enamel in a population in Skåne (a province in southern Sweden). School children from 12 to 14 years old, from three small districts, were investigated. The average fluoride content of the drinking water in the three districts varied from 1.0 to 1.3 ppm. The control group was chosen from one of the primary schools in Malmö, near the Royal Dental School where the examination of the children was carried out. The fluoride content of the communal water supply in Malmö is estimated to have been 0.5 ppm in the pre-eruptive period and 0.3 ppm in the post-eruptive period. Both continuous and noncontinuous residents in the respective communities were included in the study, as well as a group of "native" children from rural districts with local water supplies.

The following conclusions were reached:

1. There was no difference between the control group and the groups from the three districts—Simrishamn, Astorp and Nyvång—in the number of erupted teeth or in the eruption time of the second molars.
2. The incidence of enamel opacities (mottled enamel) was 37 per cent in the three districts, 22 per cent in Malmö.
3. The continuous-resident children of the three districts had only half as many DMF teeth as the Malmö children. Even after corrections for heterogeneity in age, this difference was of the same order of magnitude.
4. A caries-preventive effect of fluorine also was observed in the noncontinuous residents in the three districts. The children from districts with local wells averaging 0.7 ppm fluoride had, by and large, less caries than children using water with an average fluoride content of 0.3 ppm.
5. The caries reduction was evident in all groups of teeth and most conspicuously in the upper incisors.

Royal Dental School, Malmö, Sweden

The dentist-patient relationship

James E. Kelly. *D. Health Memo., USPHS*
3-4 July 15, 1958

The care received in Public Health Service clinics does not differ significantly from the dental care received in the offices of private practitioners. Whether the dentist is a Public Health Service officer or a private practitioner—salaried or self-employed—his part in the dentist-patient relation must be based on a concern for the health and well-being of the patient. The dentist's goal is to gain the confidence of each patient and the co-operation of each in the recommended course of treatment.

The dentist-patient relationship is always strongly influenced by the clinic environment. An important difference exists between the environment of the private practitioner and that of the Public Health Service dentist. The private dentist is wholly responsible for his clinic situation. In the Public Health Service clinic, the patient may become aware of two separate personalities—that of the dentist and that personified by the clinic organization of which the dentist is only a part. When the clinic personality is revealed as one that binds both dentist and patient to hard and fast rules, red tape and unvarying procedures, a barrier to the establishment of an optimum dentist-patient relationship is set up.

The relationship of the Public Health Service dentist to his patients can be improved by maintenance of a friendly, efficient atmosphere; by cleanliness and orderliness in office routine; by politeness and promptness in caring for patients, and by any measures that will lessen the patient's awareness of the restrictions imposed by clinic organization and policy.

The placing of partitions between operating units in the larger clinics might heighten the patient's feeling of privacy and the dentist's sense of individuality. Clinic policy that affects the type or extent of dental care for patients never should be represented as absolute. When specific procedures must be recommended or refused because of policy, this should be explained tactfully to the patient.

*U.S. Public Health Service, South Building,
Washington, D.C.*



Anesthesia
and analgesia

**Disease transmission
by an inadequately sterilized
anesthetic apparatus**

E. Pfeifer and H. Pfeifer.

Anaesthetist, Berlin 7:131-133 May 1958

A study of the source of several instances of disease transmission in patients to whom a gaseous anesthetic was administered in a dental office was carried out at the Dental School of the University of Heidelberg, Germany.

The fact that disease transmission occurred within a period of one week indicated that the transfer of pathogenic bacteria from patient to patient was caused by an inadequately sterilized anesthetic apparatus.

Bacteriologic examination of different parts of the apparatus revealed the presence of the following microorganisms: *Neisseria catarrhalis*, *Streptococcus anhemolyticus*, *Micrococcus pyogenes* var. *aureus*, *M. epidermidis*, *Proteus vulgaris*, *Escherichia coli*, *Sarcinae*, *Pseudomona aeruginosa*, *Alcaligenes faecalis*, and various species of yeast fungi, aerobes and gram-positive microorganisms. Bacterial counts, isolation and identification showed that the majority of the pathogenic bacteria were found in the endotracheal tube and the face piece, but some disease-producing bacteria were also found in other parts of the apparatus.

Sterilization of tubes, face pieces and connectors by steam under pressure (at a temperature of 120° C. for from 10 to 30 minutes) in an autoclave is recommended. The corrugated tubes and the breathing bag should be immersed in a 3 per cent hexachlorophene solution for at least five hours. After sterilization, all parts of the anesthetic apparatus should be rinsed, dried and reattached.

The study demonstrates beyond doubt that passage of pathogenic bacteria does occur—from

the patient to parts of the apparatus, especially the breathing bag, and thereby from patient to patient—if the anesthetic apparatus is not completely sterilized.

Hospitalstrasse 1, Heidelberg, Germany

**A comparative clinical evaluation
of some commonly used
local anesthetic compounds**

William S. Kramer. *J.A.D.A.* 56:820-830

June 1958

Seven commonly used local anesthetic solutions which previously had not been compared to one another were evaluated clinically in double blind tests for potency, induction time, duration, the occurrence of untoward symptoms, and the effect of varying concentrations of vasoconstrictor. Induction times were within satisfactory practical limits for all solutions tested. The information recorded came from 3,703 successive injections made for adult patients during a period of 13 months.

The following observations were made:

1. The newer, more potent compounds produced a noticeable increase in depth of anesthesia. Of these, lidocaine hydrochloride 2 per cent with epinephrine 1:50,000 was superior for both conductive and infiltrative anesthesia.

2. Maxillary duration, except for 2 per cent procaine hydrochloride with epinephrine 1:60,000, did not vary greatly between solutions. Mandibular duration had considerable range among the various solutions (from 2 hours 31 minutes to 4 hours 26 minutes).

3. The occurrence of untoward symptoms (fainting, tremor, postoperative edema, nervousness, pain on injection and headache) was low and indicated that the more potent compounds were no more likely to produce untoward symptoms than procaine 2 per cent in clinical use.

4. The influence of vasoconstrictor concentrations is not as precisely predictable as has been thought. Each concentration must be evaluated on the basis of its clinical performance; factors other than the changing of vasoconstrictor dilution apparently are important.

*College of Dentistry, University of Nebraska,
Lincoln, Neb.*

General

**The color of patients' hair
in dental literature
one hundred years ago**

Ch. Böhne. *Zahnärztl.Praxis* 9:128
May 15, 1958

Franz Brunn, who taught dentistry at the University of Graz, Austria, was the author of the book *Anesthesia in Dentistry*, which was published by F. X. Wangler of Freiburg/Breisgau in 1861. It was praised by dental educators and practitioners as "an immense enrichment of the contemporary dental literature, containing an excellent evaluation of all available anesthetic agents." Francis Joseph I, the Austrian Emperor, bestowed great honors on Brunn and gave him a diamond ring as a present.

Brunn wrote: "A mixture of ether and chloroform, administered by inhalation, is the most effective agent to obtain anesthesia sufficiently deep and of an adequate duration to permit painless dental procedures of any kind."

"It will be important, however, to determine the 'safe moment' for the beginning of the operation contemplated. The most significant sign for the sufficient profoundness of anesthesia is the occurrence of insensibility in the eye and its surrounding region.

"When the patient's eyelashes are slightly touched by the dentist's fingers, and no reactions such as nervous blinking or increased lacrimation occurs, the dental procedure can safely be initiated.

"Patients with red hair, however, do not react readily to the touch of the dentist's finger, and in these patients the 'safe moment' is difficult to establish. Dentists, therefore, should be aware that red-haired patients will cause them more trouble and will require not only a stronger anesthetic dose but far more patience and attention than other patients."

John Hilton, an English surgeon and dentist, reported also in 1861 on his experience with a gray-haired patient.

"The patient was referred to me by a physician, to diagnose and treat throbbing pain in the left part of the face which appeared resistant to any kind of medication.

"The facial neuralgia was associated with a unique symptom. The dark hair of the patient changed its color in the region near the left temple and became gray, forcing the patient to wear a wig.

"Thorough dental examination revealed that the first left lower molar was carious and the gingival tissue was severely inflamed. After extraction of this tooth, the 'neuralgic' pain gradually subsided.

"It seems obvious that a relation exists between the sudden change in color of the patient's hair and the presence of the carious molar in the lower jaw."

Unfortunately, the author did not mention in his report whether the patient's hair regained its normal color after tooth extraction.

13b München-Gräfelfing, Germany

**Development of a germicidal soap
containing Bithionol**

S. H. Hopper and K. M. Wood. *J.Am.Pharm.A.* (Sci.Ed.) 47:317-318 May 1958

A nontoxic, effective and inexpensive germicidal scrub soap has been developed. This report describes the action of Bithionol (2,2'-thiobis [4,6-dichlorophenol]), in a mixture of surface-active agents known as "LD-44."

One per cent Tween 80 (brand of polyoxyalkylene derivative of sorbitan monooleate) in culture media reduces the inhibitory action of hexachlorophene in a surgical scrub soap, and shows that there is no appreciable reduction in cutaneous bacterial count after eight days of continuous use. A mixture of LD-44 to which 3 per cent Bithionol was added was tested under the same conditions on 100 student nurses. It did not cause dermatitis, caused a pronounced reduction in bacterial count after eight days of continuous use, and reduced the bacterial flora on the hands to a level considerably lower than that obtained with the hexachlorophene preparation.

Indiana University School of Medicine, Indianapolis, Ind.

Dual engine equipment for high-speed techniques

Harold C. Kilpatrick. *J. Pros. Den.*
8:526-530 May 1958

With the advent of ultraspeed belt-driven equipment, the dentist is faced with the problem of changing handpieces frequently, inasmuch as belt-driven equipment still is limited to contra-angle handpieces. Contra-angle handpieces cannot be used for certain operations, such as polishing amalgam fillings, providing oral prophylaxis, powering amalgam vibrators, trimming dentures and inlays, or any operation requiring cutting tools of large diameter.

The inconvenience of changing handpieces can be overcome by various setups of dental engines. For several years the author has employed two engine setups at one chair in each of three operating rooms.

The first arrangement consists of two "unit" engines, with one on a pedestal. A single foot control with a switch is used to cut out the engine not in use. A single coolant device may be used with a crossover connected so that both handpieces may be served from the same coolant device; or two coolant devices may be used, to eliminate the need for a crossover connection.

The second arrangement consists of one "unit" motor and a regular laboratory engine mounted on a pedestal beside the "unit" or put on a mounting arm attached to the operating light arm. This setup usually requires two foot controls. The Foredom or Emesco laboratory engine may be fitted with a large pulley to produce a higher speed, up to 30,000 rpm. Although the second arrangement is not quite as efficient as the first, it provides a second power source with a minimum of expense.

The third arrangement consists of a single "unit" engine equipped with two arms and a clutch to engage either engine arm. This is one of the most efficient arrangements available. One foot controller and one central coolant unit are employed, with separate tubing for each arm. A means must be provided to cut off the coolant to the arm not in use.

High-speed equipment and technics are changing so rapidly that the dentist must make full use of auxiliary equipment to avoid purchasing ex-

pensive equipment which soon may become obsolete.

27 Ludlow Street, Yonkers, N.Y.

Use of hypnosis in dentistry

Charles F. Bodecker, Loren R. Borland, Joseph S. A. Miller and Paul Scheman. *J. South. California D.A.* 26:143-149 April 1958

Eighteen questions relating to the use of hypnosis in dentistry are discussed, and the following conclusions reached:

1. The use of hypnosis presents dangers, particularly if practiced by an improperly trained operator.
2. Hypnosis is more dangerous on neurotic persons than on mentally well-balanced ones.
3. Patients who neglect their teeth because of an inordinate fear of the hypodermic needle are not well-balanced, and hypnosis may aggravate psychotic conditions. Yet, it is just this group of patients for whom the use of hypnosis is advocated.
4. Seminars and short courses of a few days, or even of a few weeks, for training dentists in the use of hypnosis appear inadequate for the safe use of this technic in dentistry. A short course trains an operator in the method of hypnotic induction, but it cannot convey a knowledge of psychiatry and psychotherapy, for which at least a three year academic course is necessary.
5. As only a small percentage of patients cannot be treated by anesthesia, it appears a waste of time for dentists to devote an extra three years of training so as to use hypnosis safely in their practices.
6. For treatment of the few unmanageable patients, a psychiatrist might effect hypnosis for the dentist.
7. Although the dentist uses the technic of suggestion in his clinical work, it is not necessary that the patient be in a hypnotic trance in order to make the suggestions effective.
8. The available variety of anesthetic agents and sedatives is completely effective in combating pain. Why should dentists reject these and use hypnosis with its risk of harming their patients and possibly themselves?

28 Sunnyside Avenue, Hempstead, N.Y.

Dentist for 300,000

Hugh S. Deale. *Fort. Rev. Chicago D. Soc.*
36:7-8 July 1, 1958

The author, a dental missionary of the Methodist Church, is the only dentist available for over 300,000 people in the southern Belgian Congo. Most of his work involves the extraction of broken-down teeth and the replacement of missing teeth.

The African is much impressed with the "magic" medicine which makes the extraction of a tooth a painless operation. When the tooth has been extracted, often the patient asks to be shown the "thing" that caused the toothache.

The author and his family move from one mission station to another to do dental work. At each station are preachers, teachers, workmen, students and missionaries who need dental work. Often, state officials and merchants come for dental work; the fees from their work, and fees for dentures, supply the running expenses and funds for dental supplies. Dental supplies must be ordered from the United States, as none are available in the Belgian Congo.

The need for dentists and dental hygienists is overwhelming in Africa, where the general ratio of dentist to population is 1:500,000. The author has trained one African to help do dental work for his own people—extractions, fillings and prophylaxis—and hopes to train more. People at the mission stations are being educated to care for their teeth. Patients are grateful for each dental service.

150 Fifth Avenue, New York, N.Y.

Ecology of disease in world health

Jacques M. May. *U.S. Armed Forces M.J.*
9:781-794 June 1958

The concept of global epidemiology has a fascination for those who consider human disease as a maladjustment of human populations to their environments, rather than as an accident in somebody's life. Here is the problem of world health in a nutshell: disease patterns are the expression of cultural failures. The study of medical ecology is essential to understand the world health problem.

To the disease ecologist, disease is that alteration of living tissues that jeopardizes the survival of the individual or of the group in the environment in which it occurs. Factors which play a decisive role at a certain place and at a certain time in the occurrence of disease or in the formation of a disease pattern are environmental stimuli, responses from the host, and the culture of the group.

Little is known about the influence of physical climatic factors on man. We are just beginning to realize the existence and possible importance for health of such unknown variables as cosmic rays, static electricity, radiations, and probably still other forces that as yet have no name.

The medical ecologist defines society as "a pattern of mutual tolerance that occurs temporarily among living things when the dynamism of reciprocal exclusion has been exhausted." He defines culture as "the sum total of the concepts and technics that individuals or populations use in order to survive in a given environment." Not all cultural traits promote survival; some may lead the group to its destruction. People do not give up their culture easily, they like to feel the protection of their ancestors around them, and they would rather die doing something that has always been done than survive by not doing it, or by trying something that has not been tried before.

The map of disease and the map of disease factors change as the environment changes. The diseases that were prevalent among the sparse population of Manhattan when Captain Hudson sailed to our shores are not the same as those that prevail today in the same place. The map of diseases also changes because of the migration of populations.

At all times influences on the health of tomorrow's population are arising in the remotest corners of the world. We should try to recognize the development of new stimuli to disease, the changes that occur among the social structures of agents and vectors, and the changes in the maps of immunities and susceptibilities. We should keep abreast of the cultural changes that either create new links between agents and hosts or erect protective shields between them.

American Geographical Society, Broadway at 156th Street, New York, N.Y.

**Dental research—
some considerations for the clinician**

Quentin M. Smith. *D. Health Memo. U.S.P.H.S.*
1-2 June 15, 1958

Research might be defined as "organized curiosity." It is the organized investigation of any subject about which one becomes curious. Basic investigations performed in special centers constitute only a portion of scientific research.

Participation by the clinician in research affords opportunities for self-improvement, for improvement and expansion of the organization with which the participant is associated, for improved patient care, and for contributions to scientific knowledge. Although the primary concern of the clinician is providing clinical service, if he is stimulated to make even the simplest kinds of observations he should not neglect this interest. Among the types of observations the clinician may make are the following: physiologic responses to clinical and therapeutic procedures; relations between phenomena; testing of dental materials and the procedures for handling them; development of dental equipment; the study of operating technics, and analysis of existing clinical data. Research need not be new or original. Confirmation or refutation of the work of others, or of concepts long accepted, will provide valuable experience and may contribute to knowledge. Often the best research is the least expensive, using the equipment and materials at hand and requiring only the time to make and record observations.

Haphazard observations become research when the scientific method is applied. The scientific method consists of classification, measurement and controlled experimentation. Bias and lack of control are the greatest threats to the validity of experimental findings. Situations should be avoided in which the result may be affected by the conscious or subconscious attitudes of the dentist, the assistant, the patient or any other person associated with the experiment. Insofar as possible, every experimental situation should have a similar situation as a control; between the two there should be only one difference—the variable which is under study.

The U. S. Public Health Service has appointed a central dental research committee of 20 mem-

bers. From time to time these men will travel singly or in groups to stations throughout the service to discuss with each clinician individually any research interests he may have.

U. S. Public Health Service, Washington, D.C.

The waiting room

C. Hammans. *D. Echo* 28:85-86 June 1958

How long will the waiting room be regarded and treated as the stepchild of the dental office? Frequently, the operating room is furnished with the newest equipment whereas the waiting room seems to be used as a storage room for "putting away" all kinds of obsolete furniture.

The waiting room, and not the operating room, induces the first and probably the most significant impression of the new patient. Waiting should never be made unpleasant and monotonous. The greatest importance, therefore, should be given to suitable and harmonious waiting room equipment.

The waiting room determines the patient's mood, his willingness to undergo dental treatment. The room and its atmosphere serve as introductory factors and represent the dentist's willingness to care for the patient's comfort outside the dental chair.

With a pleasantly furnished waiting room, the dentist makes an essential contribution toward alleviation of the patient's anxiety and fear—a step which soon pays for itself.

Many patients leave the dental office untreated if they find the waiting room clustered with half-torn outdated magazines and equipped with worn-out chairs, tables and couches which make the room look like great-grandmother's parlor.

With some personal taste and a comparatively small amount of money, the waiting room can be redecorated and re-equipped.

We are living in a streamlined age. The purchase of chromium-plated stainless steel furniture, designed for the waiting room, is within the economic range of most dentists. The anatomically shaped chairs and elegantly formed tables are easy to clean, gaily colored, and create an atmosphere which helps to make the waiting time appear to be briefer and even pleasant.

Postfach 507, Bielefeld, Germany

New equipment

The information reported here is obtained from manufacturers. Dental Abstracts does not assume responsibility for the accuracy of the information. The interested reader may direct his inquiry to the manufacturer.

A new "Sure-Grip" frictionproof, slotted shank is provided on the "Rode" hollow core diamond instruments and carbide burs. The design, with its vertical fluted slot, prevents sideslip that augments low torque difficulties, and also prevents the instrument from popping out. The true balance achieved by the concentric design of the shank eliminates noise. *Charles W. Rode Associates, 3343 North Eastern Avenue, Los Angeles 32, Calif.*

The "Electro-Mallet" electronic foil condenser is an instrument recommended for gold foil operations. It provides malleting frequencies of from 200 to 3,600 per minute. The handpiece is $\frac{1}{8}$ inch in diameter and about 6 $\frac{1}{2}$ inches long, and weighs 3 ounces. A contrangle is comparable in effectiveness to the straight handpiece. Use of the Electro-Mallet is said to save time, to produce ideal results, and to lessen patient discomfort. Illustrated literature is available. *McShirley Products, 6535 San Fernando Road, Glendale 1, Calif.*

"Pour-A-Tray" is a new product for making custom-built impression trays and baseplates. The professional package contains 15 units and accessories. Illustrated literature is available. *Cosmos Dental Products, Inc., 43-30 Twenty-second Street, Long Island City 1, N.Y.*



A series of low-priced mobile chairs is available. The chairs are easily maneuverable, and can be propelled by the user pushing with one or both feet. Push-button control enables lightweight footrests and adjustable legrests to be attached or detached without the use of tools. The frame of the chair consists of lightweight tubular steel, chrome-plated. Wheel brakes are available as extra equipment. All chairs have ball-bearing swivel casters with five-inch diameter gray rubber tires. *Colson Corp., Jonesboro, Ark.*

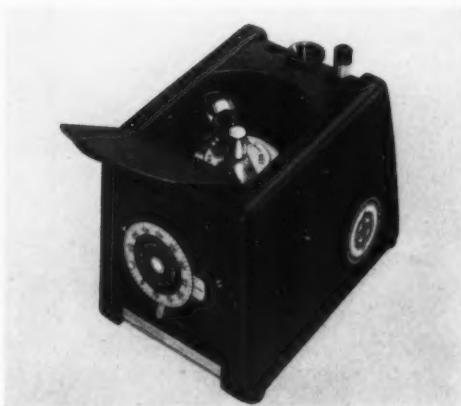


The "Super Speed" nylon elastic dental engine belt is a three-ply twisted belt made of rubber cored yarn wrapped in spun nylon. Because the belt slips little, it gives higher handpiece speeds. The elastic feature facilitates changing handpieces. *Superior Brands, P. O. Box 1484, Athens, Ga.*

Two portable office autoclaves are described in a new bulletin no. D121. The no. 999 autoclave is a double shell sterilizer of large capacity styled for the dental office. It is available in three colors—jade green, coral or silvertone—and provides automatic operation. The no. 777 "Speedclave" is a single shell, economical model that builds up steam in eight minutes from a cold start, and runs itself after the timer has been set. *Wilmot Castle Co., 1922 East Henrietta Road, Rochester, N.Y.*

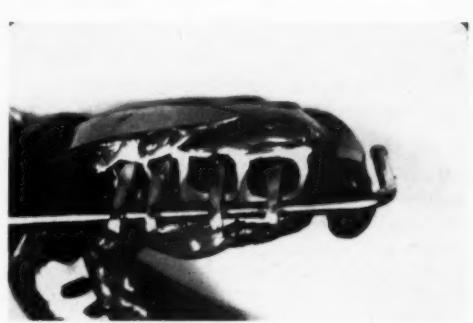
The dental mouth mirror can be kept clean by the use of Butler "Clear Dip." The solution prevents beading of water or distortion of mirror reflection, and eliminates fogging caused by mouth breathers. Clear Dip is germicidal and antisepctic. It is available in unbreakable plastic bottles, in two sizes—16 ounces and 32 ounces. The introductory package includes a glass dip jar. *John O. Butler Co., 540 North Lake Shore Drive, Chicago 11, Ill.*

"Sta-Plastic" wafers consist of pliable plastic forms which are placed on a baseplate or old denture to obtain an initial impression. The material records and retains all imprints made by the mouth functions, and is then used to hold "Stalite" plastic impression material, which is brushed on the peripheral border and post-dam area only, to complete the impression. Sample Sta-Plastic wafers are available. *Stalite, Inc., 4170 Park Avenue, New York 57, N.Y.*

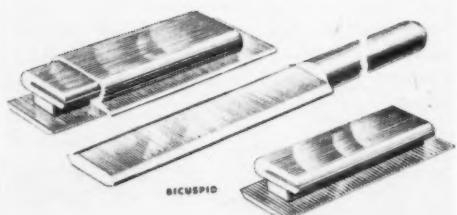


The "Amalgamaster" is a new instrument said to give the dentist control over the extraction of excess mercury from silver amalgam. The instrument uses a centrifugal principle to express the proper amount of mercury from any amalgam mixture so that the final mercury content of the restoration will have a recommended mercury content of from 44 to 48 per cent. A dial permits variations to meet the recommendations of alloy manufacturers. In eight seconds the instrument separates the mercury in the desired preset proportion. *Torit Manufacturing Co., St. Paul, Minn.*

"PermaStems" are precision dowel pins designed for use with PermaStem rods in crown and bridge impressions. The use of PermaStems eliminates the need for additional impressions and models at various stages of bridgework. They provide a single accurate model for use in all stages of bridge construction. An illustrated brochure shows the technics. *Permanent Products Corp., 1780 Broadway, New York 19, N.Y.*



In an improved design of the "Baker" precision attachment, the bicuspid and molar post, or male section, is bent over a .002 inch shim. Strength is increased. A small slot is provided into which the edge of a razor blade can be inserted, to allow precise friction adjustments to be made. The "reversible post" feature is retained; the posts have a "skirt" on both ends, so that the unit can be used as a right or left attachment. *Baker Dental Division, Engelhard Industries, Inc., 850 Passaic Avenue, East Newark, N.J.*





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LIST OF PERIODICALS ABSTRACTED

The periodicals from which abstracts were made and printed in Volume 3 of *Dental Abstracts* are listed below in the alphabetical order of their abbreviations. In addition the full title and address of each periodical are given.

Lists of all dental journals published in the United States and of dental journals published outside the United States and currently received in the Bureau of Library and Indexing Service of the American Dental Association are available free from that Bureau.

A.M.A. Arch.Dermat. A.M.A. Archives of Dermatology. American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

A.M.A. Arch.Otolaryng. A.M.A. Archives of Otolaryngology. 535 N. Dearborn St., Chicago 10, Ill.

Acad.Rev. Academy Review. California Academy of Periodontology, 530 Powell St., San Francisco 2, Calif.

Accepted Dental Remedies Accepted Dental Remedies. American Dental Association, 222 E. Superior St., Chicago 11, Ill.

Acta chir.scandinav. Acta chirurgica Scandinavica. P. A. Norstedt & Söner, Tryckerigatan 2, Stockholm 2, Sweden.

Acta CMF. Acta Cirurgia, Medicina e Farmacologia. Largo dell'Amba Arada 1, Rome, Italy.

Acta odont.scandinav. Acta Odontologica Scandinavica. Skeppsbron 44, Stockholm C, Sweden.

Acta stomat.Padua Acta Stomatologica Padavina. Via Montona 4, Padua, Italy.

Actual.odontostomat.,Paris Actualités Odonto-Stomatologiques. 6, Rue de la Bûcherie, Paris 5, France.

Air Univ.School Aviat.Med. Air University School of Aviation Medicine, U.S.A.F., Randolph Air Force Base, Texas.

Alpha Omegan Alpha Omegan. 329 Bloor St., West, Toronto 5, Canada.

Am.D.Soc.Anesthes.Newsmonthly American Dental Society of Anesthesiology Newsmonthly. 93-08 Queens Blvd., Rego Park 74, N. Y.

Am.J.Hyg. American Journal of Hygiene. Johns Hopkins Press, Baltimore 18, Md.

Am.J.Orthodont. American Journal of Orthodontics. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, Mo.

Am.J.Pub.Health. American Journal of Public Health and the Nations Health. 374 Broadway, Albany 7, N. Y.

Am.J.Roentg. American Journal of Roentgenology, Radium Therapy and Nuclear Medicine. Charles C Thomas, Publisher, 301 E. Lawrence Ave., Springfield, Ill.

Am.J.Vet.Research American Journal of Veterinary Research. American Veterinary Medical Association, 600 S. Michigan Ave., Chicago, Ill.

Am. Surgeon The American Surgeon, Mount Royal and Guilford Aves., Baltimore 2, Md.

An.españ.odontoestomat. Anales Españoles de Odontoestomatología. Avenida de Jose Antonio 27, 8, 3, Apartado de Correos 368, Madrid, Spain.

An.Fac.farm.e odont.Univ.São Paulo Anais da Faculdade de Farmácia e Odontologia da Universidade de São Paulo. Rua Três Rios 363, Caixa Postal 8216, São Paulo, Brazil.

An.Fac.odont.Montevideo Anales de la Facultad de Odontología Universidad de la Republica Oriental del Uruguay. Las Heras 1925, Montevideo, Uruguay.

Anaesthesia, Berlin Der Anaesthetist. Reichpietschufer 20, Berlin W. 35, Germany.

Anesth.& Analg. Current Researches in Anesthesia and Analgesia. Wade Park Manor, E. 107th & Park Lane, Cleveland 6, Ohio.

Anesthesiology Anesthesiology. American Society of Anesthesiologists. 3 Penn Center Plaza, Philadelphia 2, Pa.

Angle Orthodont. Angle Orthodontist. Zuelke Bldg., Appleton, Wis.

Ann.Allergy Annals of Allergy. American College of Allergists, 401 La Salle Medical Bldg., Minneapolis 2, Minn.

Ann.chir.gynaec.Fenniae Annales chirurgiae et gynaecologiae Fenniae. Kalevankatu 11, Helsinki, Finland.

Ann.odontostomat.,Lyon Annales Odonto-Stomatologiques. 6, Place Dépérét, Lyon, France.

Ann.stomat.,Roma Annali di Stomatologia. Viale Regina Margherita 287-B, Rome, Italy.

Ann.Surg. Annals of Surgery. 227-31 S. Sixth St., Philadelphia 5, Pa.

Arch.klin.Chr. Archiv für klinische Chirurgie und Deutsche Zeitschrift für Chirurgie. Reichpietschufer 20, Berlin W. 35, Germany.

Arch.stomat.Liège Archives de Stomatologie. 11-15, Rue de la Commune, Liège, Belgium.

Arizona D.J. Arizona Dental Journal. 17 E. Weldon, Phoenix, Ariz.

Arkansas D.J. Arkansas Dental Journal. 5508 W. Markham, Little Rock, Ark.

Ärztl.Wschr. Ärztliche Wochenschrift, Reichpietschufer 20, Berlin W. 35, Germany.

Atti Soc.med.,Bolzano Atti della Società medica di Bolzano. Ospedale Civili, Bolzano, Italy.

Audiovisual Instr. Audiovisual Instruction. 1201 Sixteenth St., N. W., Washington 6, D. C.

Austral.D.J. Australian Dental Journal. 135 Macquarie St., Sydney, Australia.

Bact.Proc. Bacteriological Proceedings. Society of American Bacteriologists, Williams & Wilkins Co., Mount Royal & Guilford Aves., Baltimore 2, Md.

Baylor D.J. Baylor Dental Journal. Baylor University College of Dentistry, Dallas, Texas.

Belg.Tscr.Stomat. Belgisch Tijdschrift voor Stomatologie. A. G. Vermeesch, Place Foch 8, Louvain, Belgium.

BL.Zahnhk.,Zürich Blätter für Zahnheilkunde. Stauffacherstrasse 3, Zurich, Switzerland.

Bratisl.Lekár.Listy Bratislavské Lekárske Listy. Slovenska Akademia Vied, Klemensová 27, Bratislava, Czechoslovakia.

Brit.D.J. The British Dental Journal. 13, Hill St., Berkeley Sq., London W. 1, England.

Brit.J.Anaesth. British Journal of Anaesthesia. 57 Church St., Old Isleworth, Middlesex, England.

Brit.J.Opth. British Journal of Ophthalmology. Tavistock Sq., London W.C. 1, England.

Brit.J.Plast.Surg. British Journal of Plastic Surgery. 16-17 Teviot Place, Edinburgh, Scotland.

Brit.J.Surg. British Journal of Surgery. John Wright & Sons Ltd., Bath Rd., Bristol 4, England.

Brit.M.J. British Medical Journal. British Medical Association, Tavistock Sq., London W.C. 1, England.

Bul.Alabama D.A. Bulletin of the Alabama Dental Association. 307 Graystone Bldg., Mobile, Ala.

Bul.Am.A.Cleft Palate Rehabilitation Bulletin, American Association of Cleft Palate Rehabilitation. 2201 N. Second St., Harrisburg, Pa.

Bul.Am.A.Pub.Health Den. Bulletin of the American Association of Public Health Dentists. 2411 N. Charles St., Baltimore 18, Md.

Bul.Exper.Biol.& Med. Bulletin of Experimental Biology and Medicine. 227 W. 17th St., New York 11, N.Y.

Bul.5th Dist.D.Soc. (Calif.) Bulletin of the Fifth District Dental Society, California. 3683 E. Shields Ave., Fresno, Calif.

Bul.Greater Milwaukee D.A. Bulletin of the Greater Milwaukee Dental Association. Plankinton Bldg., Suite 4130-32, 161 W. Wisconsin Ave., Milwaukee 3, Wis.

Bul.Midtown D.Soc. (Calif.) Bulletin of the Midtown Dental Society. 134 W. 58th St., New York 19, N. Y.

Bul.Nat.D.A. Bulletin of the National Dental Association. Box 388, Tuskegee Institute, Ala.

Bul.New Jersey Soc.Den.Children Bulletin of the New Jersey Society of Dentistry for Children. Arcade Bldg., Glen Ridge, N. J.

Bul.Oral Path., Tokyo Bulletin of Oral Pathology. Tokyo Dental College, Tokyo, Japan.

Bul.Philadelphia Co.D.Soc. Bulletin of the Philadelphia County Dental Society. 7901 Limekiln Pike, Philadelphia 50, Pa.

Bul.Tokyo M.D.Univ. Bulletin of Tokyo Medical & Dental University. Bankyo-Ku, Tokyo, Japan.

Bul.Virginia D.A. Bulletin of the Virginia State Dental Association. 116 Carlton Terrace Bldg., Roanoke, Va.

Calif.Med. California Medicine. California Medical Association, 450 Sutter St., San Francisco, Calif.

Canad.Anaesth.Soc.J. The Canadian Anaesthetists Society Journal. 516 Medical Arts Bldg., 170 St. George St., Toronto 5, Ontario, Canada.

Cancer Bul. Cancer Bulletin. 2310 Baldwin St., Houston, Texas.

Časop.lék.česk. Časopis Lékarů Českých. Čís. 43, Strana 1365-88, Prague 1, Czechoslovakia.

Central African J.Med. Central African Journal of Medicine. P. O. Box 2073, Salisbury, S. Rhodesia, Africa.

Cesk.stomat. Ceskoslovenská Stomatologie. Sokolská 31, Prague 2, Czechoslovakia.

Chinese M.J. The Chinese Medical Journal. Chinese Medical Association, 4, San T'iao Hutung, Tung Tan Paiou, Peking, China.

Chirurgie Die Chirurgie, Zeitschrift für alle Gebiete der operativen Medizin. Reichpietschuer 20, Berlin W. 35, Germany.

Cien.y Cult. Ciencia y Cultura. Revista de la Universidad Nacional, Zulia, Venezuela.

Clin.Med. Clinical Medicine. P. O. Box M, Winnetka, Ill.

Clin.odont.Roma Clinica Odontoiatrica. Via G. Fracastoro 2, Rome, Italy.

Columni Columni. Columbia University School of Dental and Oral Surgery Alumni, 630 W. 168th St., New York 32, N. Y.

Contact Point Contact Point. 344-14th St., San Francisco, Calif.

Czas.stomat. Czasopismo Stomatologiczne. Ul. Filtrowa 30, III piętro, Zakład Protetyki, Warsaw, Poland.

D.Delineator The Dental Delineator. 126 Great Portland St., London W. 1, England.

D.Dienst Dental Dienst. Schillerplatz 20, Bielefeld, Germany.

D.Echo, Heidelberg Dental Echo. Ladenburger Strasse 67, Heidelberg 17a, Germany.

D.Health Memo., USPHS Dental Health Memorandum. U. S. Public Health Service, Washington 25, D. C.

D.Practitioner The Dental Practitioner and Dental Record. John Wright & Sons Ltd., Bath Rd., Bristol 4, England.

D.Radiog.& Photog. Dental Radiography and Photography. 343 State St., Rochester 4, N. Y.

D.Technician The Dental Technician. 331 Gray's Inn Rd., London W.C. 1, England.

Deut.med.J. Deutsches Medizinisches Journal. Klingsorstrasse 29, Berlin-Steglitz, Germany.

Deut.med.Wschr. Deutsche medizinische Wochenschrift. Herdweg 63, Stuttgart, Germany.

Deut.Stomat. Deutsche Stomatologie. Neue Grünstrasse 18, Berlin C. 2, Germany.

Deut.Zahn Mund Kieferhk. Deutsche Zahn-, Mund- und Kieferheilkunde. Salomonstrasse 18B, Leipzig C. 1, Germany.

Deut.Zahnärzte Kal. Deutscher Zahnärzte Kalender. Carl Hansen Verlag, Munich, Germany.

Deut.Zahnärztbl. Das Deutsche Zahnärztblatt. Lazarettstrasse 2-6, Munich 2, Germany.

Deut.zahnärztl.Zschr. Deutsche Zahnärztliche Zeitschrift. Martiusstrasse 3, Munich 23, Germany.

Egyptian D.J. Egyptian Dental Journal. Dar El Hekma-42, Kasr-El-Eini St., Cairo, Egypt.

Encycl.méd.chir. Recueil Periodique de l'Encyclopédie Médico-Chirurgicale. 18 Rue Séguier, Paris, France.

Eugenics Quart. Eugenics Quarterly. American Eugenics Society Inc., 230 Park Ave., New York 17, N. Y.

Fort.Rev.Chicago D.Soc. Fortnightly Review of the Chicago Dental Society. 30 N. Michigan Ave., Chicago 2, Ill.

Fortschr.Kief.Ges.Chir. Fortschritte der Kiefer- und Gesichts-Chirurgie. Herdweg 63, Stuttgart N. (14a), Germany.

Fortschr.Kieferorthop. Fortschritte der der Kieferorthopädie. Zitelmannstrasse 16, Bonn, Germany.

Fortschr.Röntgenstr.Nuklearmed. Fortschritte auf dem Gebiete der Röntgenstrahlen und der Nuklearmedizin. Herdweg 65, Stuttgart N., Germany.

German M.Monthly German Medical Monthly. Georg Thieme Verlag, P. O. B. 732, Stuttgart, Germany.

Governors Letter, Canad.D.A. Governors Letter, Canadian Dental Association. 234 St. George St., Toronto 5, Ontario, Canada.

Harvard D.Alum Bul. Harvard Dental Alumni Bulletin. 188 Longwood Ave., Boston, Mass.

Helvo.chir.acta Helvetica chirurgica acta. Steintorstrasse 13, Basel, Switzerland.

Helect.odont.acta Helvetica odontologica acta. Postfach 121, Zurich 28, Switzerland.

Hospitals Hospitals. American Hospital Association, 18 E. Division St., Chicago 10, Ill.

Illinois D.J. Illinois Dental Journal. 632 Jefferson Bldg., Peoria 2, Ill.

Ind.Med.& Surg. Industrial Medicine and Surgery. 605 N. Michigan Ave., Chicago 11, Ill.

Indian J.M.Res. Indian Journal of Medical Research. Thacker, Spink & Co., P. O. Box 54, Calcutta, India.

Inform.dent.Paris L'Information Dentaire. 16, Rue Vignon, Paris 9, France.

Internat.A.D.Res.Preprinted Abst. International Association for Dental Research Preprinted Abstracts. International Association for Dental Research, Secretary-Treasurer, 311 E. Chicago Ave., Chicago 11, Ill.

Internat.Abs.Surg. International Abstracts of Surgery. Franklin H. Martin Memorial Foundation, 54 E. Erie St., Chicago 11, Ill.

Internat.D.J. International Dental Journal. A. Sijthoff, 37 Wagenaarstraat, The Hague, The Netherlands.

Internat.J.Anesth. International Journal of Anesthesia. International Association of Anesthesiologists, Inc., 210 E. Lexington St., Baltimore 2, Md.

Internat.Zschr.Vitaminforsch. Internationale Zeitschrift für Vitaminforschung. Marktgassee 9, Bern, Switzerland.

Iowa D.J. The Iowa Dental Journal. 639 Insurance Exchange Bldg., Des Moines 9, Iowa.

Irish D.Rev. Irish Dental Review. 43 Parkgate St., Dublin, Ireland.

Irish J.M.Sc. Irish Journal of Medical Science. Cahill & Co., Ltd., Parkgate Printing Works, Dublin, Ireland.

J.A.D.A. The Journal of the American Dental Association. 222 E. Superior St., Chicago 11, Ill.

J.A.M.A. The Journal of the American Medical Association. 535 N. Dearborn St., Chicago 10, Ill.

J.All India D.A. Journal of the All-India Dental Association. Gen. Assurance Bldg., 232 Dr. Dadabhai Nabroji Rd., Bombay 1, India.

J.Am.Col.Den. Journal of the American College of Dentists. 14615 E. Jefferson Ave., Detroit 15, Mich.

J.Am.D.Soc.Anesthesiology The Journal of the American Dental Society of Anesthesiology. 93-08 Queens Blvd., Rego Park 74, N. Y.

J.Am.Osteopath.A. The Journal of the American Osteopathic Association. 212 E. Ohio St., Chicago 11, Ill.

J.Am.Pharm.A. Journal of the American Pharmaceutical Association. 2215 Constitution Ave., N. W., Washington 7, D. C.

J.belge radiol. Journal belge de radiologie. 16 Place de l'Industrie, Brussels, Belgium.

J.California D.A. & Nevada D.Soc. Journal of the California State Dental Association and the Nevada State Dental Society. 450 Sutter St., San Francisco 8, Calif.

J.Canad.D.A. Journal of the Canadian Dental Association. 234 St. George St., Toronto 5, Ontario, Canada.

J.Colorado D.A. Journal of the Colorado State Dental Association. 724 Republic Bldg., Denver 2, Colo.

J.Connecticut D.A. Journal of the Connecticut State Dental Association. 37 Linnard Rd., West Hartford 7, Conn.

J.D.A.South Africa Journal of the Dental Association of South Africa. P. O. Box 3094, Cape Town, South Africa.

J.D.Educ. Journal of Dental Education. 344 Fourteenth St., San Francisco 3, Calif.

J.D.Med. Journal of Dental Medicine. 57 W. 57th St., New York 19, N. Y.

J.D.Res. Journal of Dental Research. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, Mo.

J.Den.Children Journal of Dentistry for Children. 14615 E. Jefferson Ave., Detroit 15, Mich.

J.dent.belge Journal Dentaire Belge. 166 Chaussee d'Etterbeek, Brussels 4, Belgium.

J.estomat.,Lisbon Jurnal de Estomatologia. Rua Joaquim Antonio de Aguiar, N. 73-4, Lisbon, Portugal.

J.Florida M.A. Journal of the Florida Medical Association. Box 1018, Jacksonville 1, Fla.

J.Georgia D.A. Journal of the Georgia Dental Association. 6 Washington Block, Macon, Ga.

J.Health, Phys.Educ,& Recreat. Journal of Health, Physical Education and Recreation. 1201-16th St., N. W., Washington, D. C.

J.Hypnosis & Psychol.in Den. Journal of Hypnosis and Psychology in Dentistry. 7407 W. Irving Park Road, Chicago 34, Ill.

J.Implant Den. The Journal of Implant Dentistry. 920 Wins-ton Rd. S., Rochester 18, N.Y.

J.Indiana D.A. The Journal of the Indiana State Dental Association. 1012 Hume Mansur Bldg., Indianapolis 4, Ind.

J.Internat.Col.Surgeons The Journal of the International Col-lege of Surgeons. 1516 Lake Shore Dr., Chicago 10, Ill.

J.Japan Stomat.Soc. Journal of the Japan Stomatological Society. No. 1, 3-chome Yushima, Bunkyo-ku, Tokyo, Japan.

J.Kansas City Dist.D.Soc. Journal of the Kansas City District Dental Society. 6314 Brookside Plaza, Kansas City, Mo.

J.Kentucky D.A. Journal of the Kentucky State Dental Society. 123 E. Main Cross St., Greenville, Ky.

J.Louisiana D.Soc. Journal of the Louisiana Dental Associa-tion. 407 Medical Arts Bldg., Shreveport, La.

J.Michigan D.A. The Journal of the Michigan State Dental Association. 112 E. Allegan, Lansing, Mich.

J.Missouri D.A. The Journal of the Missouri State Dental Association. 201 Merchants Bank Bldg., Jefferson City, Mo.

J.New Jersey D.Soc. The Journal of the New Jersey State Dental Society. 146 Belmont Ave., Jersey City, N.J.

J.Ohio D.A. Journal of the Ohio State Dental Association. Box A, College of Dentistry, Ohio State University, Columbus 10, Ohio.

J.Oklahoma D.A. Journal of the Oklahoma State Dental As-sociation. 210 Plaza Court Bldg., Oklahoma City 3, Okla.

J.Ontario D.A. Journal of the Ontario Dental Association. 234 St. George St., Toronto, Ontario, Canada.

J.Oral Surg. Journal of Oral Surgery. 222 E. Superior St., Chicago 11, Ill.

J.Osaka Univ.D.Soc. The Journal of Osaka University Dental Society. 32 Joanocho, Kitaku, Osaka, Japan.

J.Pediat. Journal of Pediatrics. C. V. Mosby Co., 3207 Wash-ington Blvd., St. Louis 3, Mo.

J.Periodont. Journal of Periodontology. 1121 W. Michigan St., Indianapolis 2, Ind.

J.Philippine D.A. Journal of the Philippine Dental Associa-tion. 631 Quezon Blvd., Manila, Philippines.

J.Pros.Den. The Journal of Prosthetic Dentistry. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, Mo.

J.radiol.electrol. Journal de la radiologie, d'électrologie et Archives d'électricité médicale. 120 Blvd. St. Germain, Paris 6, France.

J.Roy.Col.Surg.Edinburgh Journal of the Royal College of Surgeons of Edinburgh. Edinburgh 8, Scotland.

J.South.California D.A. Journal of the Southern California State Dental Association. 903 Crenshaw Blvd., Los Angeles 19, Calif.

J.Tennessee D.A. The Journal of the Tennessee State Dental Association. 902 Bennie-Dillon Bldg., Nashville 3, Tenn.

J.Wisconsin D.Soc. The Journal of the Wisconsin State Den-tal Society. 704 W. Wisconsin Ave., Milwaukee 3, Wis.

Klin.Wschr. Klinische Wochenschrift, Organ der Gesellschaft deutscher Naturforscher und Ärzte. Reichpietschufer 20, Berlin W. 35, Germany.

Lancet Lancet. 7 Adam St., Adelphi, London W.C. 2, Eng-land.

Landarzt Der Landarzt. Hippocrates Verlag, Neckarstrasse 121, Stuttgart 0, Germany.

M.J.Osaka Univ. Medical Journal, Osaka University. 33 Joanocho, Kitaku, Osaka, Japan.

M.Mundi Medicamundi, Quarterly Journal on Medical Sci-ence. Eindhoven, The Netherlands.

M.Press Medical Press. 7-8 Henrietta St., London W.C.2, England.

Macleans Magazine Macleans Magazine. Maclean-Hunter Pub. Co., Ltd., 1242 Peel St., Montreal 2, Quebec, Can-adia.

Massachusetts D.Soc.J. Massachusetts Dental Society Journal. 227 Commonwealth Ave., Boston 16, Mass.

Méd.& Hyg. Médecine et Hygiène. 15, Boulevard des Phi-losophes, Geneva, Switzerland.

Med.Klin. Medizinische Klinik. Verlag Urban & Schwarzen-berg, Munich 15, Germany.

Medizinische Die Medizinische. Schloss Strasse 20, Stuttgart 1, Germany.

Mie M.J. Mie Medical Journal. Mie Prefectural University School of Medicine, Tsu, Honshu, Japan.

Mil.Med. Military Medicine. Suite 718, New Medical Bldg., 1726 Eye St., N. W., Washington, D. C.

Minerva stomat. Minerva Stomatologica. Corso Bramante 83-85, Turin 314, Italy.

Minnesota Med. Minnesota Medicine. 496 Lowry Medical Arts Bldg., St. Paul 2, Minn.

München.med.Wschr. Münchener Medizinische Wochenschrift. Paul Heyse Strasse 26, Munich 15, Germany.

Naturwissenschaft. Die Naturwissenschaften. Reichpietschufer 20, Berlin W. 35, Germany.

Nederlands Tandarts. Nederlands Tandartsenblad. Prins Hendriklaan 16, Zeist, The Netherlands.

Neues Zahnheilkunde. Neues aus der Zahnheilkunde. Georgswall 4, Hannover, Germany.

New England J.Med. The New England Journal of Medicine. 8 Fenway, Boston 15, Mass.

New Mexico D.J. New Mexico State Dental Journal. 113 Girard Blvd., S.E., Albuquerque, N.Mex.

New York J.Den. The New York Journal of Dentistry. 499 Lincoln Pl., Brooklyn 38, N.Y.

New York J.Med. New York State Journal of Medicine. 386-4th Ave., New York 16, N.Y.

New York State D.J. New York State Dental Journal. 28 Sunnyside Ave., Hempstead, N.Y.

New York Univ.J.Den. New York University Journal of Den-tistry. 1 Hanson Pl., Brooklyn 17, N.Y.

New Zealand D.J. New Zealand Dental Journal. Lister Bldg., Victoria St. E., Auckland C.1, New Zealand.

1957 Rep.Nutrit.Foundation 1957 Report of the Nutrition Foundation. 99 Park Ave., New York 16, N.Y.

Nord.med. Nordisk Medicin. Sturegatan 18, Stockholm 5, Sweden.

North-West Den. North-West Dentistry. 4741 S. Fremont Ave., Minneapolis 9, Minn.

Northwest.Univ.Bul. Northwestern University Bulletin. 309 E. Chicago Ave., Chicago 11, Ill.

Nutrit.News Nutrition News. National Dairy Council, 111 N. Canal St., Chicago 8, Ill.

Odont.Chilena Odontología Chilena. Casilla 8031, Santiago, Chile.

Odont.Revyl Odontologisk Revy. Stortorget 6, Lund, Sweden.

Odont.Tskr. Odontologisk Tidskrift. Erik Dahlbergsgatan 9, Göteborg C, Sweden.

Odontoatria,Madrid Odontoatria. Jorge Juan 39, Madrid, Spain.

Oesterr.Zschr.Stomat. Österreichische Zeitschrift für Stomato-logie. Frankgasse 4, Vienna, Austria.

Oesterr.Zahnärzte Ztg. Österreichische Zahnärzte-Zeitung. Weihburggasse 10-12, Vienna 1, Austria.

Oral Surg.,Oral Med.& Oral Path. Oral Surgery, Oral Medi-cine and Oral Pathology. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, Mo.

ORCA Proceedings of the 4th Congress of the European Organization for Research on Fluorine and Dental Caries Prevention. Arvid Syrist, Secretary General, Stockholm, Sweden.

Oregon D.J. Oregon State Dental Journal. 3245 N.E. Schuyler St., Portland 12, Ore.

Orthodontic Record Orthodontic Record. 4 Main St., Flemington, N.J.

Parodontol.Zürich Parodontologie. Imprimerie Berichthaus, Zwingliplatz 3, Zurich, Switzerland.

Pennsylvania D.J. Pennsylvania Dental Journal. 217 State St., Harrisburg, Pa.

Plast.& Reconstr.Surg. Plastic & Reconstructive Surgery. Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, Md.

Pract.D.Monogr. Practical Dental Monographs. 200 E. Illinoi-st St., Chicago 11, Ill.

Prakt.zubní lékař Praktické zubní lékařství. Sokolská 31, Prague 2, Czechoslovakia.

Presse méd. La Presse Médicale. Masson & Cie., 120 Boule-vard Saint-Germain, Paris 6, France.

Proc.Mayo Clin. Proceedings of the Staff Meetings of the Mayo Clinic. Rochester, Minn.

Proc.Roy.Soc.Med. Proceedings of the Royal Society of Medi-cine. 1 Wimpole St., London W. 1, England.

Proc.Soc.Exper.Biol.& Med. Proceedings of the Society for Experimental Biology and Medicine. 104 Liberty St., Utica, N.Y.

Pub.Health,London Public Health. Journal of the Society of Medical Officers of Health. 7-8 Henrietta St., London W.C.2, England.

Pub.Health Rep. Public Health Reports. Public Health Ser-vice, Health, Education, and Welfare Bldg., Washington 25, D. C.

Quintessenz Die Quintessenz der zahnärztlichen Literatur. Stallupöner Allee 18, Berlin-Charlottenburg, Germany.

Radiology Radiology. Radiological Society of North America, 607 Medical Arts Bldg., Syracuse 2, N.Y.

Rass.internaz.stomat.prat. Rassegna internazionale di stomatologia pratica. Foro Buonaparte 59, Milan, Italy.

Rass.trim.odont. Rassegna trimestrale di Odontoiatria. Corso Italia 49, Milan, Italy.

Refuat Hashimaim Refuat Hashimaim. 47-49 Bar Kochba St., Tel-Aviv, Israel.

Rev.A.D.Mexicana Revista de la Asociación Dental Mexicana. Sinaloa No. 9, 3er. piso, Mexico, D.F., Mexico.

Rev.A.odont.Argentina Revista de la Asociación Odontológica Argentina. Junin 959, Buenos Aires, Argentina.

Rev.brasil.odont. Revista brasileira de odontologia. Avda. 13 de Maio, Cong. 1001-2, salas 1-6, Rio de Janeiro, Brazil.

Rev.Círculo odont.Santafesino Revista del Círculo Odontológico Santafesino. Catamarca 2467, Santa Fé, Argentina.

Rev.dent.Chile Revista Dental de Chile. Casilla 2575, Santiago de Chile, Chile.

Rev.dent.Ciudad Trujillo Revista Dental Apartado de Correos 784, Ciudad Trujillo, Dominican Republic.

Rev.espan.estomat. Revista Española de Estomatología. Mallorca 207, Barcelona, Spain.

Rev.Fed.odont.Colombiana Revista de la Federacion Odontológica Colombiana. Calle 16, 7-91 Of. 4, Bogota, Colombia.

Rev.franc.odontostomat. Revue française d'Odonto-Stomatologie. Librairie Maloine S.A. 27, Rue de l'Ecole-de-Medecine, Paris 6, France.

Rev.mens.suisse odont. Revue mensuelle suisse d'Odontologie. Buchdruckerei Berichtshaus, Zurich, Switzerland.

Rev.odontostomat. Revue d'Odonto-Stomatologie. Institut d'Odonto-Stomatologie, 16-20 Cours de la Marne, Bourdeaux, France.

Rev.ital.Stomat. Rivista Italiana di Stomatologia. Calle Ballotta 4866, Venice, Italy.

Röntgenbl. Röntgenblätter. Neumarktstrasse 50, Wuppertal, Germany.

S.Carolina D.J. South Carolina Dental Journal. 1406 N. Fant St., Anderson, S.C.

Science Digest Science Digest. 200 E. Ontario St., Chicago 11, Ill.

Science Science. 1515 Massachusetts Ave., N. W., Washington 5, D. C.

Scient.Am. Scientific American. 2 W. 45th St., New York 36, N.Y.

Schweiz.Mschr.Zahnhk. Schweizerische Monatsschrift für Zahnheilkunde. Buchdruckerei Berichtshaus, Zurich, Switzerland.

Sechenov Physiol.J.U.S.S.R. Sechenov Physiological Journal of the U.S.S.R. Pergamon Institute, 122 E. 55th St., New York 22, N.Y.

Shikwa Gakuho Shikwa Gakuho. Tokyo Dental School, No. 17, Kanda-Misakicho, Chiyodaku, Tokyo, Japan.

South African M.J. South African Medical Journal. P.O. Box 643, Cape Town, South Africa.

Stoma Stoma, Zeitschrift für die wissenschaftliche Zahn-, Mund- und Kieferheilkunde. Wilckenstrasse 3, Heidelberg, Germany.

Stomat.Bucharest Stomatologia. Strada Progresului 8, Bucharest, Romania

Stomat.Moscow Stomatologija. Medghis, Petrovka 12, Moscow, U.S.S.R.

Suomen hammaslääk.toim. Suomen Hammaslääkärisseuran Toimituska. Bulevardi 30 B., Helsinki, Finland.

Surg.Gynec.& Obst. Surgery, Gynecology and Obstetrics. Franklin H. Martin Memorial Foundation, 54 E. Erie St., Chicago 11, Ill.

Svensktandläk.Tskr. Svensk Tandläkare-Tidskrift. Skeppsbron 44, Stockholm, Sweden.

Tandlaegebl. Tandlaegebladet. Osterbrogade 4, Copenhagen, Denmark.

Tandtech.Vakbl. Tandtechnisch Vakblad. Stationsweg 10, The Hague, The Netherlands.

Temas.odont. Temas odontológicos. Aptdo. Nacional 269, Medellin, Colombia.

Texas D.J. Texas Dental Journal. 3707 Gaston Ave., Dallas 10, Texas.

This Week This Week Magazine. United Newspapers Magazine Corp., 420 Lexington Ave., New York 17, N.Y.

Time Time. Time Inc., 540 N. Michigan Ave., Chicago 11, Ill.

Tip fac.mecmuasi Tip facultés mecmuasi. Istanbul University, Istanbul, Turkey.

Tribuna odont.,Buenos Aires Tribuna odontológica. Casilla de Correo 2047, Buenos Aires, Argentina.

Tschr.tandheelk. Tijdschrift voor Tandheelkunde. Jutfaseweg 1, Utrecht, The Netherlands.

Tumori Tumori. Via G. Bertacchi 7, Milan, Italy.

U.S.Armed Forces M.J. U.S.Armed Forces Medical Journal. 23rd & E Sts., N. W., Washington 25, D.C.

U.S.Navy M.Newsletter United States Navy Medical Newsletter. Department of the Navy, Bureau of Medicine and Surgery, Washington 25, D.C.

Umschau Die Umschau in Wissenschaft und Technik. Umschau Verlag, Frankfurt/Main, Germany.

Univ.Michigan M.Bul. University of Michigan Medical Bulletin. 1525 University Hospital, Ann Arbor, Mich.

Vestnik Khir.,Moscow Vestnik Khirurgii. Nevytsky Pr. 28, Leningrad, U.S.S.R.

Vojnosan.pregl.,Belgrade Vojnosanitetski Pregled. Vojnoš-tamparsko Preduzeć, Belgrade, Yugoslavia.

W.S.Kellogg Foundation Rep. for 1957 W. S. Kellogg Foundation Report for 1957. Battle Creek, Mich.

W.Virginia D.J. West Virginia Dental Journal. 822 S. Kanawha St., Beckley, W.Va.

Washington D.A.Newsletter Washington Dental Association Newsletter. 612 Medical-Dental Bldg., Seattle 1, Wash.

Zahnärztl.Mitt. Zahnärztliche Mitteilungen. Herforderstrasse 10, Bielefeld, Germany.

Zahnärztl.Prazis Zahnärztliche Praxis. Hans Cornelius Strasse 4, München-Gräfeling, Germany.

Zahnärztl.Rundschau Zahnärztliche Rundschau. Fasanenstrasse 61, Berlin W. 15, Germany.

Zahnärztl.Welt & Reform Zahnärztliche Welt und zahnärztliche Reform. Wilckenstrasse 3, Heidelberg, Germany.

Zobozdrav.vest. Zobozdravstveni Vestnik. Levstikova 22, Ljubljana, Yugoslavia.

Zschr.prophyl.Med. Zeitschrift für prophylaktische Medizin. Lübeck, Germany.

